U. S. TREASURY DEPARTMENT.

THE MISSISSIPPI

AND ITS FORTY-FOUR

NAVIGABLE TRIBUTARIES.

A DESCRIPTIVE, COMMERCIAL, AND STATISTICAL REVIEW,
ILLUSTRATED WITH THREE DIAGRAMS.

BY

ALEX. D. ANDERSON,

Author of "Mexico from the Material Standpoint."

BEING PART V OF THE REPORT BY W. F. SWITZLER, CHIEF OF THE BUREAU OF STATISTICS, ON THE INTERNAL COMMERCE OF THE UNITED STATES.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1888.

U. S. TREASURY DEPARTMENT.

THE MISSISSIPPI

AND ITS FORTY-FOUR

NAVIGABLE TRIBUTARIES.

A DESCRIPTIVE, COMMERCIAL, AND STATISTICAL REVIEW,
ILLUSTRATED WITH THREE DIAGRAMS.

BY

ALEX. D. ANDERSON,

Author of "Mexico from the Material Standpoint."

BEING PART V OF THE REPORT BY W. F. SWITZLER, CHIEF OF THE BUREAU OF STATISTICS, ON THE INTERNAL COMMERCE OF THE UNITED STATES.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1888.

6408

F351
.A5+

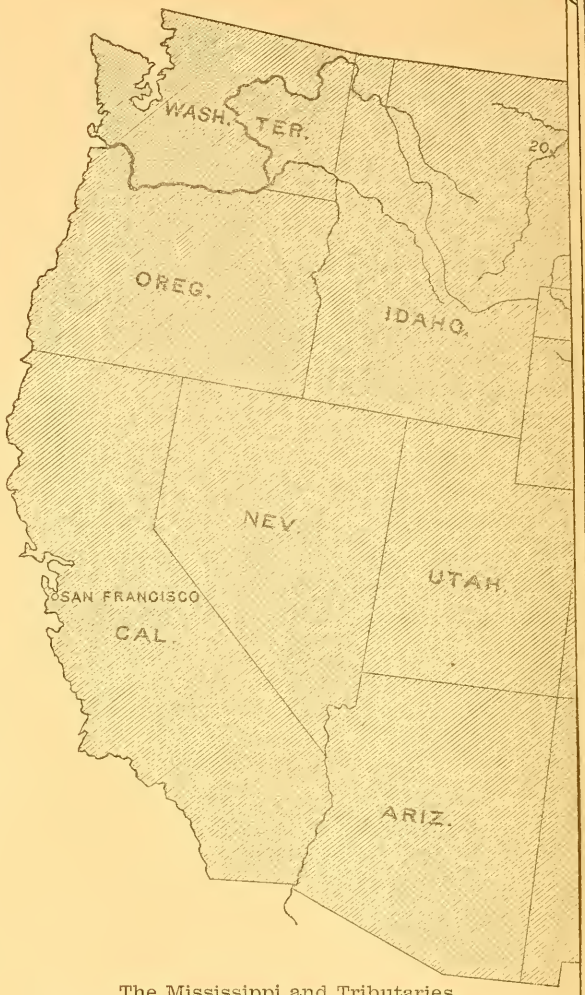
JUN 25 1906
D. of D.

GE 54 M4 2

CONTENTS

MAP OF THE MISSISSIPPI AND TRIBUTARIES.

I. HISTORICAL NOTES.
II. DESCRIPTIVE NOTES.
Extent as a drainage system.
Extent as commercial highways.
Valley States and Territories.
Internal supplements.
Interocean supplements.
III. ECONOMICAL FEATURES.
Correct location.
Connection of opposite climates.
Construction by nature.
Commercial value.
Cost of repairs.
Commercial capacity.
Cheap transportation.
IV. PRODUCTS OF THE STATES INTERSECTED.
Contrast with those of the United States.
V. INTERNAL COMMERCE OF THE STATES INTERSECTED.
Estimate of its value.
How transported.
Increasing demand for transportation.
VI. ALLUVIAL LANDS.
Area and present condition.
Present value.
Future value if protected.
Productive capacity.
Contrast with the Netherlands.
The question of protection.
VII. DESTRUCTIVE FLOODS.
Floods of 1868 and 1871.
Flood of 1874.
Flood of 1881.
Flood of 1882.
Flood of 1883.
VIII. NATIONAL FEATURES.
National in extent.
National in law.
National in benefits.
National in damage.
National in politics.
Opinions of national statesmen.
IX. INTERNATIONAL FEATURES.
American countries at the South—diagrams of first and second century.
Our foreign commerce of the first century.
Our foreign commerce of the second century.
APPENDIX.
Act creating the Commission.
River distances.
List of authorites.
List of popular publications.
List of official documents.



The Mississippi and Tributaries.

	Rivers.	*Heads of Navigation.*
1	Big Cypress and Lake,	Jefferson, Tex.
2	Red,	Slate Shoals, Tex.
3	Dauchite,	Minden Landing, La.
4	Black,	Mouth of Ouachita. La.
5	Ouachita,	Camden, Ark.
6	Bartholemew,	Baxter, Ark.
7	Boeuf,	Wallace's, Ark.
8	Macon,	Floyd, La.
9	Tensas,	Westwood, La.
10	Arkansas,	Wichita, Kas.
11	Little Red,	Searcy's, Ark.
12	White,	War Eagle, Mo.
13	Current,	Jones Ferry, Mo.
14	Black,	Perkins, Mo.
15	Cache,	Gray's Ferry, Ark.
16	St. Francis,	Wittsburg, Mo.
17	Osage,	Papinville,
18	Big Horn,	Ft. Custer, Mon.
19	Yellowstone,	Belle Butte, Mon.
20	Missouri,	Great Falls, Mon.
21	Iowa,	Iowa City, Ia.
22	Minnesota	Patterson's Rapids, Minn.
23	Mississippi,	St. Anthony's Falls, Minn.

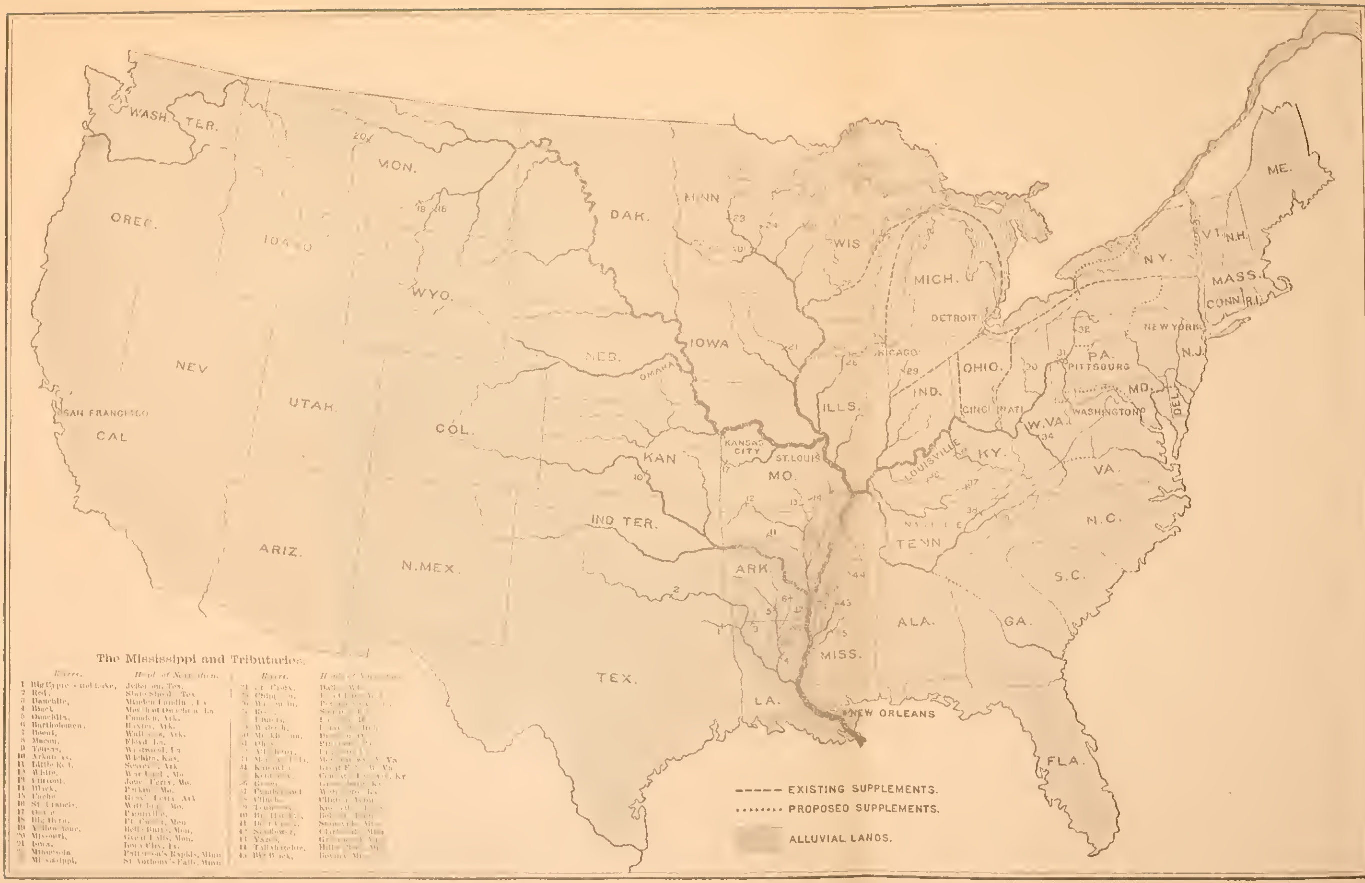
	Rivers.	*Heads of Navig*
24	St. Croix,	Dalles, Wis.
25	Chippewa,	Eau Claire. Wis
26	Wisconsin,	Portage City, W
27	Rock,	Sterling, Ills.
28	Illinois,	La Salle, Ills.
29	Wabash,	Lafayette, Ind.
30	Muskingum,	Dresden, O.
31	Ohio,	Pittsburg, Pa.
32	Alleghany,	Franklin, Pa
33	Monongahela,	Morgantown. W
34	Kanawha,	Great Falls, W
35	Kentucky,	Congar's Landi
36	Green,	Greensburg, Ky
37	Cumberland,	Waitsboro', Ky
38	Clinch,	Clinton, Tenn
39	Tennessee,	Knoxville, Ten
40	Big Hatchie,	Bolivar, Tenn
41	Deer Creek,	Stoneville, Miss
42	Sunflower,	Clarksdale, Mis
43	Yazoo,	Greenwood, Mis
44	Tallahatchie,	Hill's Place, Mi
45	Big Black,	Bovina, Miss

I.—HISTORICAL NOTES.

In the early days of European discoveries and rivalries in the Mississippi Valley its comprehensive river system played a prominent part on the stage of public affairs. The discovery of the river, in 1541, by De Soto and his Spanish troops was about a century later followed by explorations by the French under the lead of Marquette, Joliet, La Salle, and others, who entered the valley from the north. La Salle, during the years 1679–'83, explored the river throughout its whole length, took possession of the great valley in the name of France, and called it Louisiana in honor of his King, Louis XIV. Then resulted grand schemes for developing the resources of the valley, which a French writer characterized as "the regions watered by the Mississippi, immense unknown virgin solitudes which the imagination filled with riches." One Crozat, in 1712, secured from the king a charter giving him almost imperial control of the commerce of the whole Mississippi Valley. There was at that date no European rival to dispute French domination, for the English of New England and the other Atlantic colonies had not extended their settlements westward across the Alleghanies, and the Spanish inhabitants of New Spain or Mexico had not pushed their conquest farther north than New Mexico. Crozat's trading privileges covered an area many times as large as all France, and as fertile as any on the face of the earth. But he was unequal to the opportunity, and, failing in his efforts, soon surrendered the charter.

John Law, a Scotchman, at first a gambler, and subsequently a bold, visionary, but brilliant financier, succeeded Crozat in the privileges of this grand scheme, and secured from the successor of Louis XIV a monopoly of the trade and development of the French possessions in the valley. In order to carry out his wild enterprise he organized a colossal stock company, called "The Western Company," but more generally known in history as "The Mississippi Bubble." According to the historian Monette "it was vested with the exclusive privilege of the entire commerce of Louisiana and New France, and with authority to enforce its rights. It was authorized to monopolize the trade of all the colonies in the provinces, and of all the Indian tribes within the limits of that extensive region, even to the remotest source of every stream tributary in any wise to the Mississippi." So skillful and daring were his manipulations that he bewitched the French people with the fascinations of stock gambling. The excitement in Paris is thus described by Thiers:

> It was no longer the professional speculators and creditors of the Government who frequented the rue Quincampoix; all classes of society mingled there, cherishing the same illusions—noblemen famous on the field of battle, distinguished in the government, churchmen, traders, quiet citizens, servants whom their suddenly acquired fortune had filled with the hope of rivaling their masters. * * *
>
> The rue Quincampoix was called the Mississippi. * * *
>
> The month of December was the time of the greatest infatuation. The shares ended by rising to eighteen and twenty thousand francs—thirty-six and forty times the first price.
>
> At the price which they had attained the six hundred thousand shares represented a capital of ten or twelve billions of francs.


WASH. TER.
MON.
OREG.
IDAHO
DAK.
MINN
WIS
MICH.
ME.
VT.
N.H.
N.Y.
MASS.
CONN
R.I.
WYO.
DETROIT
NEW YORK
N.J.
PA.
PITTSBURG
MD.
DEL.
WASHINGTON
NEB.
OMAHA
IOWA
CHICAGO
OHIO.
IND.
ILLS.
CINCINNATI
W.VA.
NEV
UTAH.
SAN FRANCISCO
CAL
COL.
KANSAS CITY
ST. LOUIS
LOUISVILLE
KY.
VA.
KAN
MO.
IND. TER.
TENN
N.C.
ARIZ.
N.MEX.
ARK.
S.C.
ALA.
GA.
MISS.
TEX.
LA.
NEW ORLEANS
FLA.
The Mississippi and Tributaries.
EXISTING SUPPLEMENTS.
PROPOSED SUPPLEMENTS.
ALLUVIAL LANDS.

But the bubble soon burst and its explosion upset the finances of the whole Kingdom.

Some years later, in 1745, a French engineer named Deverges made a report to his Government in favor of improving the mouth of the Mississippi, and stated that the bars there existing were a serious injury to commerce.

But France met with too powerful rivalry in the valley, and in 1762 and 1763, after a supremacy of nearly a hundred years, was crowded out by the English from the Atlantic colonies and the Spaniards from the southwest, the Mississippi River forming the dividing line between the regions thus acquired by those two nations.

The Spanish officials, for the purpose of promoting colonization, and to aid in establishing trading posts on the Mississippi, Missouri, Arkansas, Red, and other rivers in the western half of the valley, granted to certain individuals, pioneers, and settlers, large tracts of land. They made little progress, however, in peopling their new territory.

But whatever progress was made under the successive supremacies of France and Spain, the Mississippi and its navigable tributaries supplied the only highways of communication and commerce.

In the year 1800, soon after Napoleon I became the civil ruler of France, he sought to add to the commercial glory of his country by reacquiring the territory resting upon the Mississippi which his predecessors had parted with in 1763.

To quote the language of a French historian:

> The cession that France made of Louisiana to Spain in 1763 had been considered in all our maritime and commercial cities as impolitic and injurious to the interests of our navigation, as well as to the French West Indies, and it was very generally wished that an opportunity might occur of recovering that colony. One of the first cares of Bonaparte was to renew with the court of Madrid a negotiation on that subject.

He succeeded in these negotiations, and by the secret treaty of St. Ildefonso, in 1800, French domination was once more established over the great river.

Two years later the commerce of the river had grown to large proportions. Says Marbois, of that period: "No rivers of Europe are more frequented than the Mississippi and tributaries." A substantially correct idea of their patronage may be obtained from the record of the foreign commerce from the mouth of the Mississippi, for nearly all of the commodities collected there for export had first floated down the river. Of the year 1802, says Martin in his history of Louisiana:

> There sailed from the Mississippi—

	No.	Tons.
American vessels	158	21,383
Spanish vessels	104	9,753
French vessels	3	105
Total	265	31,241

The tonnage of vessels that went in ballast, not that of public armed ones, is not included. The latter took off masts, yards, spars, and naval stores.

This growing commercial movement down the river of the products of the valley was checked by a foolish or arbitrary order issued on the 16th of October, 1802, by the Intendant Morales, "suspending the right of deposit" at the port of New Orleans.

Marbois well illustrates the intense indignation at this order on the

part of the Western people by attributing to them the following language:

The Mississippi is ours by the law of nature; it belongs to us by our numbers, and by the labor which we have bestowed on those spots which before our arrival were desert and barren. Our innumerable rivers swell it and flow with it into the Gulf Sea. Its mouth is the only issue which nature has given to our waters, and we wish to use it for our vessels. No power in the world shall deprive us of this right.

Of Morales' order James Madison, then Secretary of State, wrote to the official representative of the United States at the court of Spain:

You are aware of the sensibility of our Western citizens to such an occurrence. This sensibility is justified by the interest they have at stake. The Mississippi to them is everything. It is the Hudson, the Delaware, the Potomac, and all the navigable rivers of the Atlantic States formed into one stream.

At this time Thomas Jefferson was President, and in view of the uneasiness of the Western settlers, he hastened to send to France a special embassador to negotiate for the purchase of Louisiana Territory. The opportunity was a favorable one, for France was then in danger of a conflict with Great Britain. The latter country had become alarmed at and jealous of Bonaparte's commercial conquests, and he, apprehending war and fearing that he could not hold Louisiana, had about determined to do the next best thing—dispose of it to one of England's rivals.

Marbois, the historian of Louisiana, from whom we have above quoted, was chosen by Napoleon to represent France in the negotiations with the representative of the United States sent by Jefferson. His account of the cession—the consultation between Napoleon and his ministers—and of his remarks and motives, forms one of the most instructive and interesting chapters of modern history. Napoleon foreshadowed his action by the following remark to one of his counselors:

To emancipate nations from the commercial tyranny of England it is necessary to balance her influence by a maritime power that may one day become her rival; that power is the United States. The English aspire to dispose of all the riches of the world. I shall be useful to the whole universe if I can prevent their ruling America as they rule Asia.

In a subsequent conversation with two of his ministers, on the 10th of April, 1803, on the subject of the proposed cession, he said, in speaking of England: "They shall not have the Mississippi which they covet."

In accordance with this conclusion, on the 30th day of the same month the sale was made to the United States. When informed that his instructions had been carried out and the treaty consummated, he remarked:

This accession of territory strengthens forever the power of the United States, and I have just given to England a maritime rival that will sooner or later humble her pride.

Under the stimulating influence of American enterprise the commerce of the valley rapidly developed. In 1812 it entered upon a new era of progress by the introduction for the first time upon the waters of the Mississippi of steam transportation.

The river trade then grew from year to year, until the total domestic exports of its sole outlet at the sea-board—the port of New Orleans—had during the fiscal year 1855–'56 reached the value of over $80,000,000. Its prestige was then eclipsed by railways, the first line reaching the Upper Mississippi in 1854, and the second the Lower Mississippi, at Saint Louis, in 1857. Says Poor:

The line first opened in this State from Chicago to the Mississippi was the Chicago and Rock Island, completed in February, 1854. The completion of this road extended

the railway system of the country to the Mississippi, up to this time the great route of commerce of the interior. This work, in connection with the numerous other lines since opened, has almost wholly diverted this commerce from what may be termed its natural to artificial channels, so that no considerable portion of it now floats down the river to New Orleans.

The correctness of this assertion may be seen by reference to the statistics of the total domestic exports of New Orleans during the year ending June 30, 1879. They were $63,794,000 in value, or $16,000,000 less than in 1856, when the rivalry with railways began.

But since 1879 the river has entered upon a new and important era. The successful completion of the jetties by Capt. James B. Eads inaugurated a new era of river commerce and regained for it some of its lost prestige.

Another step of great importance to the welfare of the Mississippi was taken about the same time. The control of its improvement was transferred by Congress to a board of skilled engineers known as the Mississippi River Commission. The various conflicting theories of improvement which have for years past done much to defeat the grand consummation desired will now be adjusted in a scientific and business-like manner.

Again, the rapidly-growing popular demand throughout the United States for more intimate commercial relations with Mexico and the several sister nations of Central and South America, which lie opposite the mouth of this great river system, is stimulating the long-neglected longitudinal trade and thereby creating a new demand for transportation on the longitudinal water-ways which comprise the Mississippi and its tributaries.

The practical extension of the Mississippi to the Pacific Ocean by the coming opening of an interocean canal or ship railway, across the Isthmus of Central America or Tehuantepec, is still another commercial departure which will soon make a new demand for water transportation up and down the Mississippi Valley.

In view of this tendency of American commerce and transportation a general or bird's-eye view of the Mississippi, its tributaries, supplements, and national and international features will, it is thought, be of value to the producers and consumers who are so deeply interested in the subject of cheap transportation between the great interior and the sea-board.

II.—DESCRIPTIVE NOTES.

EXTENT AS A DRAINAGE SYSTEM.

The Mississippi and tributaries, considered as a drainage system, extend nearly the whole length of the United States, from Canada to the Gulf, and across more than half its width, or from the summit of the Rocky Mountains to that of the Alleghanies.

The Mississippi basin in its strict sense, comprises the following minor basins or subdivisions:

Basin.	Square miles.	Basin.	Square miles.
Lower Mississippi	65,646	Upper Mississippi	179,635
Red	92,721	Ohio	207,111
Arkansas	184,742		
Missouri	527,690	Total	1,257,545

Of the many divisions and subdivisions of the river two hundred and forty are considered of sufficient importance to be named upon the river map in Walker's Statistical Atlas of the United States. They may be classified as follows:

Red and tributaries	17
Arkansas and tributaries	28
Missouri and tributaries	76
Ohio and tributaries	58
Others not included in the above classification	61
Total	240

Probably as many more streams of minor importance are omitted from the map.

EXTENT AS COMMERCIAL HIGHWAYS.

Considered from a commercial stand-point the Mississippi and tributaries intersect or border twenty-one States and Territories, as follows:

Alabama.	Kansas.	Nebraska.
Arkansas.	Kentucky.	Ohio.
Dakota Territory.	Louisiana.	Pennsylvania.
Illinois.	Minnesota.	Tennessee.
Indiana.	Mississippi.	Texas.
Indian Territory.	Missouri.	West Virginia.
Iowa.	Montana Territory.	Wisconsin.

Steamers can now transport freight in unbroken bulk from St. Anthony's Falls to the Gulf of Mexico, a distance of 2,161 miles, and from Pittsburgh to Fort Benton, Mont., 4,333 miles.

Lighter craft can ascend the Missouri to Great Falls, near where that river leaves the Rocky Mountains.

The outline map preceding Chapter I has been prepared to illustrate the comprehensive nature of this great river system. Its Briarean arms reach out in all directions and embrace nearly the whole United States.

The cross-mark on each stream indicates the head of navigation, and in nearly every instance continuous navigation.

The following table represents the mileage of the navigable portion of each above its mouth:

Name of river.	Miles.	Name of river.	Miles.
Missouri	3,127	Cache (Arkansas)	160
Mississippi	2,161	Macon	130
Ohio	1,021	Allegheny	123
Red	986	Deer Creek	116
Arkansas	884	Monongahela	110
White	779	Kentucky	105
Tennessee	759	Kenawha	94
Cumberland	609	Muskingum	94
Yellowstone	474	Tensas	92
Ouachita	384	Iowa	80
Wabash	365	Current	80
Osage	303	Big Hatchie	75
Minnesota	2 5	Rock	64
Bœuf	280	Black (Louisiana)	61
Sunflower	271	Chippewa	57
Illinois	270	St. Croix	55
Yazoo	228	Big Horn	50
Bartholomew	213	Clinch	50
Black (Arkansas)	212	Little Red	49
Green	200	Big Cypress and Lake	44
St. Francis	180	Big Black	35
Tallahatchie	175	Dauchite	33
Wisconsin	69		

The total present navigation of these rivers, 45 in all, is 16,090 miles—more than four times the length of the ocean line from New York to Liverpool, and more than four times the distance by rail across the continent from New York to San Francisco.

But it will be largely increased in the near future, when certain proposed and needed improvements are made on some of the upper streams. The possibilities in this respect are well illustrated by the condition of the Upper Mississippi. Of it the Select Committee of the United States Senate on Transportation Routes to the Sea-board said, in their report in 1874:

> The Mississippi has for several years been successfully navigated by steam-boats from the falls of St. Anthony to Sauk Rapids, a distance of 78 miles. During navigable seasons small steam-boats are also run on the various reaches of the river from Minneapolis to Leech Lake, the entire distance being about 675 miles.

It is safe to assert that by improving several tributaries the total navigation may be extended at least 1,000 miles.

VALLEY STATES AND TERRITORIES.

As we will have occasion, upon subsequent pages, to give statistics in regard to the sixteen valley States and Territories, and also the twenty-one States and Territories intersected by the navigable portions of this great river system, it may be well to define the term valley. It comprises the following States and Territories:

Arkansas.	Kansas.	Nebraska.
Dakota.	Kentucky.	Ohio.
Illinois.	Louisiana.	Tennessee.
Indiana.	Minnesota.	Wisconsin.
Indian Territory.	Mississippi.	
Iowa.	Missouri.	

Strictly speaking, a fractional part of a few of these States might be omitted from, and portions of other States included in, the term valley; but as the statistics which we will have occasion to review are arranged by States we will not atrempt to include those fractional parts, but will deal simply with facts relating to whole States.

INTERNAL SUPPLEMENTS.

Extensive and comprehensive as are the water-ways of the valley, they are not sufficient to satisfy the popular and commercial demand for inland water transportation. Many artificial extensions have already been constructed, and more are projected or proposed.

The waters of the Mississippi have a present connection with the Great Lakes by means of a canal from the Wisconsin River to Fox River and Lake Michigan, by a canal from the Wabash River to Lake Erie at Toledo, a canal from the Ohio River at Cincinnati to Lake Erie at Toledo, and a canal from the Ohio River at Portsmouth, Ohio, to Lake Erie at Cleveland—all of which canals are in turn supplemented by the water route via the Lakes, Erie Canal, and Hudson River to New York City, thereby uniting the Mississippi with the Atlantic Ocean.

These four canals, and consequently the Mississippi, have another connection with the Atlantic by way of the Lakes, Welland Canal, around Niagara Falls, and the St. Lawrence River, for the Canadian Government has at a great cost completed the necessary connecting link.

It is also proposed to unite the Mississippi with Lake Michigan by means of a canal extending from Davenport, Iowa, to Hennepin, on the Illinois River, and thence to Chicago.

Again it is proposed that the United States utilize the St. Lawrence route by extending it to New York City by way of Lake Champlain and Hudson River. Such a connection has already been favorably reported by the Select Committee of the United States Senate on Transportation Routes to the Sea-board. A noticeable feature of this route is the connection in this way of the Mississippi Valley with a New England State, Vermont.

It is also proposed to unite the waters of the Mississippi and the Lakes with the Atlantic at Baltimore by means of a canal from the existing Erie Canal, via Seneca Lake, to an upper tributary of the Susquehanna, and thence to Chesapeake Bay.

Again, a direct connection of the Mississippi with the Atlantic at Baltimore, without use of the Lakes, is proposed by way of the Alleghany River from Pittsburgh, the Kiskiminetas and Conemaugh Rivers, thence to the Juniata Valley and the Susquehanna, and down that river to Chesapeake Bay. A similar connection with Philadelphia is proposed by the same route from Pittsburgh to the Susquehanna, and thence across to Delaware Bay.

Located a little further south is the line of the projected and partially constructed Chesapeake and Ohio Canal, intended to connect the Atlantic with the West by way of the Potomac, Youghiogheny, Monongahela, and Ohio Rivers. The line is already completed from Washington to Cumberland. It was earnestly advocated by President Washington, who wished in this way to strengthen the political and commercial ties between the Atlantic States and the West.

Next is the proposed James River and Kanawha Canal, to connect the Atlantic with the Mississippi Valley by way of the James, Greenbrier, New, Kanawha, and Ohio Rivers. This route is already constructed from Richmond to Buchanan, Va., a distance of 197 miles. It

was recently recommended by the said Senate Committee on Transportation Routes.

Still further south it is proposed to supplement the Mississippi by means of a water line from the Tennessee River, at Guntersville, East Tennessee, via Short Creek, Wills Creek, Coosa, Etowah, and Ocmulgee Rivers, and thence along the coast to Savannah, Ga. This route was also recommended by the Senate Committee on Transportation Routes.

In the far West it is proposed to unite the waters of the Upper Missouri and Columbia Rivers, thereby connecting the Mississippi Valley with the Pacific Ocean. A bill to provide for a survey and report upon this route has recently been introduced in Congress.

These various existing and proposed supplements may be seen by a reference to the map preceding Chapter I.

INTER-OCEAN SUPPLEMENTS.

To consummate the new commercial movement down the river and direct trade relations with the foreign countries around the Atlantic and Pacific Oceans, two other great works are needed—inter-ocean transit across Florida on the one side and the Isthmus of Tehuantepec on the other. The natural relations of both enterprises to the Mississippi are most intimate. Each may appropriately be termed a supplement or extension of the river.

The proposed Florida ship canal will shorten the distance between New Orleans and New York 571 statute miles each way, or 1,142 on the round trip. It will shorten the voyage between New Orleans and Liverpool 473 statute miles each way, or 946 on the round trip.

The great saving of distance via this route, together with its advantages in point of safety over the present hazardous route around the southern extremity of Florida, will render it a material aid to the Mississippi in preventing the acquisition by Canada of the grain transportation business between the valley and Liverpool.

On the 18th of December, 1880, Mexico entered into a contract with Capt. James B. Eads for the construction of a ship-railway across the Isthmus of Tehuantepec.

This inter-ocean line, when completed, will give the Gulf of Mexico and its surroundings their first direct commercial outlet to the Pacific Ocean and its surrounding countries, with the following saving of distances over the existing railway at Panama and the existing steam-ship route around Cape Horn:

	Statute miles.
Mouth of the Mississippi to Hong-Kong:	
Via Isthmus of Tehuantepec (great circle)	10,092
Via Isthmus of Panama (great circle)	11,912
Saving via Tehuantepec (one way)	1,820
Saving via Tehauntepec (round trip)	3,640
Mouth of the Mississippi to Hong-Kong:	
Via Isthmus of Tehuantepec (great circle)	10,092
Via Cape Horn (great circle)	20,594
Saving via Tehuantepec (one way)	10,502
Saving via Tehuantepec (round trip)	21,004
Mouth of the Mississippi to Yokohama:	
Via Isthmus of Tehuantepec (great circle)	8,549
Via Isthmus of Panama (great circle)	10,369
Saving via Tehuantepec (one way)	1,820
Saving via Tehuantepec (round trip)	3,640
Mouth of the Mississippi to Yokohama:	
Via Isthmus of Tehuantepec (great circle)	8,549
Via Cape Horn (great circle)	20,018
Saving via Tehuantepec (one way)	11,469
Saving via Tehuantepec (round trip)	22,938

	Statute miles.
Mouth of the Mississippi to Sydney, Australia:	
Via Isthmus of Tehuantepec (great circle)	9,188
Via Isthmus of Panama (great circle)	10,341
Saving via Tehuantepec (one way)	1,153
Saving via Tehuantepec (round trip)	2,306
Mouth of the Mississippi to Sydney, Australia:	
Via Isthmus of Tehuantepec (great circle)	9,188
Via Cape Horn (great circle)	14,975
Saving via Tehuantepec (one way)	5,787
Saving via Tehuantepec (round trip)	11,574
Mouth of the Mississippi to San Francisco:	
Via Isthmus of Tehuantepec	3,466
Via Isthmus of Panama	5,302
Saving via Tehuantepec (one way)	1,836
Saving via Tehuantepec (round trip)	3,672
Mouth of the Mississippi to San Francisco:	
Via Isthmus of Tehuantepec	3,466
Via Cape Horn	15,908
Saving via Tehuantepec (one way)	12,442
Saving via Tehuantepec (round trip)	24,884

III.—ECONOMICAL FEATURES.

CORRECT LOCATION.

Railroads and other highways intended for the accommodation of commerce fall far short of success when unwisely located. Too many have violated the laws of political economy in this respect, and have proved ruinous to their stockholders and almost useless to the public. A nation may sometimes, for political or military purposes, construct a road through a desert or mountainous and unproductive region; but necessity, instead of economy, is the theory on which it acts. Commerce is governed by other considerations. It seeks that which is both useful and profitable.

The Mississippi and tributaries intersect the most fertile valley of the whole world—the productive center of this continent. It supplies transportation where most needed, and is, therefore, most wisely and economically located.

CONNECTION OF OPPOSITE CLIMATES.

Railways in the past have given undue attention to commercial exchanges along parallels of latitude, between similar climates, with similar products and characteristics. The tendency of the whole Mississippi River system is the other way, from north to south, one climate to another, regions which are the reverse and complement of each other in supply and demand. In this respect also it observes a fundamental law of trade.

CONSTRUCTION BY NATURE.

The next important consideration in a transportation line is the cost of construction. Railway stockholders expect dividends, and if their roads be extravagantly built the burden is soon shifted to the shoulders of the producer and consumer along the way in the shape of excessive rates. Even if rightly located and cheaply built, railroads represent enormous capital when contrasted with rivers made by nature at no expense to the people.

The 16,000 miles of navigable water-ways which constitute the commercial part of the Mississippi River system were constructed and presented by nature at no cost to the people. But they are just as valuable as if artificially built. They are the nation's property, and should, like its military roads, its custom-houses, post-offices, and other property, be kept in repair. Congress is the board of management for this purpose, and should, in guarding the people's transportation property, exercise the same skill and observe the same laws of economy as railway directors who are chosen to manage the railway lines owned by individual stockholders.

COMMERCIAL VALUE.

There were, during the census year 1880, 87,782 miles of railway in operation in the United States, built at a total cost, for construction, of $4,112,367,176, or an average of $46,848 per mile.

Now, in view of the facts and figures showing the superior and economical location of the Mississippi and its navigable tributaries, their wonderful commercial capacity, their facilities for cheap transportation, the enormous annual products of the twenty-one States and Territories intersected, and the colossal proportions of their internal commerce, it may not be unreasonable to estimate their actual commercial value as follows:

The Lower Mississippi, from Saint Louis to the Gulf, at $468,480 per mile, or ten times the average cost per mile of the railways of the United States.

The Upper Mississippi, from Saint Louis to St. Anthony's Falls, at $327,936 per mile, or seven times that of the average railway.

The Ohio, from its mouth to Pittsburgh, the Missouri, from its mouth to Sioux City, the Red River, from its mouth to Shreveport, and the Cumberland, from its mouth to Nashville, at $234,240 per mile, or five times that of the average railway.

The remaining navigable tributaries of the Mississippi at $46,848 per mile, or the same as that of the average railway.

We have then a total valuation as follows:

The Lower Mississippi, from Saint Louis to the Gulf (1,352 miles)	$633,387,664
The Upper Mississippi, from Saint Louis to St. Anthony's Falls (809 miles)	265,300,224
The Ohio, from its mouth to Pittsburgh (1,021 miles)	239,159,040
The Missouri, from its mouth to Sioux City (1,019 miles)	238,690,560
The Red, from its mouth to Shreveport (456 miles)	106,813,440
The Cumberland, from its mouth to Nashville (209 miles)	48,956,160
The remaining navigable tributaries of the Mississippi (10,774 miles)	522,542,592
Total value	2,054,849,680

In other words, the people of the United States have in the Mississippi and its forty-four navigable tributaries, highways of commerce and cheap transportation to the sea-board to the enormous value of $2,000,000,000. This property was a present from nature. The question naturally arises, will they manage it on business principles and keep it in an adequate state of repairs?

COST OF REPAIRS.

The total sum expended by the General Government from March 4, 1789, to June 30, 1886 (a period of ninety-seven years), in the improvement of the Mississippi and its forty-four navigable tributaries, was in round numbers about $51,000,000.

The expenditures by rivers, compiled and rearranged from the official reports of the Treasury Department, are as follows:

Name.	Amount.	Name.	Amount.
Mississippi	$29,785,666	Bœuf	$15,000
Ohio	5,048,348	Tensas	7,000
Missouri	2,866,965	Current	7,000
Tennessee	2,816,456	Big Black (Mississippi)	5,000
Kenawha	1,749,000	Rock	934
Red	1,443,793	Green	
Illinois	1,161,000	Wisconsin (see Miscellaneous).	
Cumberland	722,479	Cache	
Kentucky	709,998	Macon	
Wabash	487,500	Deer Creek	
Arkansas	420,076	Iowa (see Miscellaneous).	
Monongahela	303,600	Big Horn	
Ouachita	290,000	Little Red	
Osage	189,994	Dauchite	
Yazoo	143,000	*Miscellaneous.*	
White	142,000		
Chippewa	128,000	Fox and Wisconsin	2,579,522
Minnesota	117,500	Mississippi, Ohio, Missouri, and Arkansas	2,484,937
Muskingum	110,000	Mississippi and Ohio	631,500
Yellowstone	100,000	Mississippi, Missouri, and Arkansas	265,000
Cypress and Lake	94,000	Mississippi, Missouri, and Ohio	222,923
St. Croix	75,000	White and St. Francis	132,000
Black (Arkansas)	51,000	Mississippi and Missouri	98,541
Allegheny	50,000	Lower Mississippi and tributaries	11,855
Sunflower	42,000	White, Black, and Little Red	10,000
St. Francis	27,000	White, Black, and St. Francis	1,623
Black (Louisiana)	25,000	Des Moines and Iowa	999
Tallahatchie	24,000		
Clinch	21,600	Total	55,654,209
Big Hatchie	19,000		
Bartholomew	18,000		

A slight deduction should be made from the grand total, as Fox River, included in the list, is not a tributary of the Mississippi; but as its appropriation is combined with that of the Wisconsin, which is a tributary, the two can not be separated. Another slight deduction, probably about $3,000,000, should be made from the total for unexpended balances carried to the surplus fund, but this deduction can not be given by rivers. Estimating the two deductions at $4,000,000, we have as a net total of expenditures for the improvement of the Mississippi and its forty-four navigable tributaries $51,654,209. This is at the rate of $532,515 per year during the ninety-seven years since the beginning of the Government for the improvement of forty-five rivers, navigable to the extent of 16,090 miles, or at the rate of $33 per mile per year.

As the commercial value of these forty-five rivers is, on a previous page, estimated at $2,054,849,680, the total cost of repairs during the ninety-seven years was but 2½ per cent. of their value, or at the rate of one-fortieth of 1 per cent. of their value per year.

In brief, the forty-five rivers cost nothing, being a present from nature, and their repairs next to nothing.

COMMERCIAL CAPACITY.

The enormous capacity of the Mississippi and its principal tributaries for the transportation of bulky agricultural, forestry, and mineral products of the States intersected was admirably illustrated by the following paragraph which appeared in the Western papers in 1879. It is a volume in itself, and worthy of frequent repetition to impress upon the minds of the producers of this country the great commercial importance of the water-ways with which they have been so liberally endowed by nature:

The towboat *Josh Williams* is on her way to New Orleans with a tow of thirty-two barges, containing 600,000 bushels (76 pounds to the bushel) of coal, exclusive of her own fuel, being the largest tow ever taken to New Orleans or anywhere else in the world. Her freight bill, at 3 cents a bushel, amounts to $18,000.

It would take 1,800 cars of 333 bushels to the car (which is an overload for a car) to transport this amount of coal.

At $10 per ton, or $100 per car, which would be a fair price for the distance by rail, the freight bill would amount to $180,000, or $162,000 more by rail than by river.

The tow will be taken from Pittsburgh to New Orleans in fourteen or fifteen days.

It would require one hundred trains, of eighteen cars to the train, to transport this one tow of 600,000 bushels of coal, and even if it made the usual speed of fast freight lines it would take one whole summer to put it through by rail.

This statement shows the wonderful superiority of this river over rail facilities.

CHEAP TRANSPORTATION.

The question of cheap transportation has during late years assumed great importance, for the reason that it affects both internal and foreign commerce and the welfare of both the producer and consumer. When the rates are too high, production is checked. It has been no unusual thing to hear of farmers in the West burning or otherwise destroying their grain because it was unprofitable to ship it abroad. The object of commercial exchanges is profit, and where that does not exist internal commerce suffers. So with foreign exchanges. If England and France and other purchasers of our grain and provisions can buy at cheaper rates elsewhere they are sure to do so. The competition among commercial nations is so great that a trifling overcharge in rates of transportation may cost the loss of an important market.

The rivals of the United States will, if they can supply Liverpool at cheaper rates, control that market. The subject was well illustrated in a public letter by ex-Governor Horatio Seymour in the fall of 1878, who has carefully studied the effect of the Erie Canal on freight rates. We quote the following from that letter:

> Those who wish to learn the causes of our present exports must compare the cost of carrying this season with that of other years. It has been 15 cents for a bushel of wheat by canal from Buffalo to New York. This season at times it has been less than 5 cents. The cost from Chicago to New York has been 25 cents for a bushel. In the past summer it has been taken for less than 7 cents. The policy of taking charges off from commerce is not only shown upon water routes; it brought down railroad charges. In 1873 the Central road charged for taking wheat from Buffalo to New York 21 cents per bushel in the winter and 18 cents in the summer months. This year the road has taken it for 5 cents.

The effect of water transportation is direct and indirect. In other words, it furnishes the shipper with cheap rates, and also, by its competitive influence, forces railways to lessen the charges.

The rates of transportation of grain from the center of the Mississippi Valley at Saint Louis to the sea-board at New Orleans by river, contrasted with the rates from Saint Louis to New York by rail, were, according to the annual reports of the Saint Louis Merchants' Exchange, as follows during the past ten years:

Year.	Average rate on wheat, in bulk, in barges, by river, to New Orleans, per bushel.	Average rate on grain in sacks, on steam-boat, by river, to New Orleans, per 100 pounds.	Average rate on grain by rail to New York, per 100 pounds.
	Cents.	*Cents.*	*Cents.*
1877	8½	21	41
1878	7¼	17½	38
1879	7⅜	18	33½
1880	8¼	19	42
1881	6	20	83
1882	6 5/12	20	29½
1883	5¼	17¾	33
1884	6⅝	14	26
1885	6⅝	15	22½
1886	6½	16	29

It will be observed that the rate on grain by river to the sea-board at New Orleans during 1886 was 13 cents less per hundred pounds than by rail to the sea-board at New York. To appreciate the magnitude of this difference when applied to the grain crop of the twenty-one States and Territories intersected by the Mississippi and its navigable tributaries, supposing half of the annual crop had to be transported from Saint Louis to the sea-board, let us glance at a few statistics.

Their total grain crop during the year 1885 was 2,529,781,000 bushels, as may be seen by reference to another page. A saving of 7 cents per bushel on half of this crop would amount to $88,542,335.

But grain is only one item of the agricultural freights of the valley which can best be transported by water. If to the above sum of $88,542,335 were added the possible annual saving by river transportation on the hay, coal, potatoes, cotton, tobacco, and other bulky products of the valley the total would reach immense proportions.

We know of no better conclusion to draw from the above facts and figures than that made by the Select Committee of the United States Senate, in 1874, on Transportation Routes to the Seaboard, after a full and exhaustive review of that important subject, viz:

> The above facts and conclusions, together with the remarkable physical adaptation of our country for cheap and ample water communication, point unerringly to the improvement of our great natural water-ways and their connection by canals, or by short freight railway portages, under control of the Government, as the obvious and certain solution of the problem of cheap transportation.

The importance of this subject may be further illustrated by a glance at the total freight earnings of the railroads of the United States during a period of only six years. They were as follows:

1881	$551,968,477
1882	506,367,247
1883	549,756,695
1884	502,869,910
1885	519,690,992
Total	2,630,653,321

In other words, the freight charges by the railways of the United States amount in five years to a sum greater than the whole national debt.

We do not make these comparisons for the purpose of reflecting upon railways, but to reach some statistical conclusions in regard to the value and importance of the rivers of the valley. In this broad, fertile, and but partially-developed country there is room enough for both classes of highways. Railways are needed, not only those now in operation, but many more, and rivers are needed as freight regulators.

In brief, the Mississippi is the balance-wheel which is destined to regulate the railway freight movements of the great interior of the nation. This idea was well expressed in the following editorial of the Springfield Republican of December 13, 1880:

> The Mississippi River is certain in time to play a part in regulating transcontinental freight transportation not unlike that of the Erie Canal in relation to the New York railroads. The block in through freight on all the East and West roads threatened last week to set back to Saint Louis, but it was relieved there by starting the corn and wheat down the river, from 300 to 400 cars at a time being loaded on barges. As trade develops and navigation improves it is plain this must become more and more common, and through rail rates will some day be fixed by the competition of the Mississippi, on which navigation is never closed.

IV.—PRODUCTS OF STATES INTERSECTED.

CONTRAST WITH THOSE OF THE UNITED STATES.

The transcendent commercial importance of the water-ways of the Mississippi and its forty-four navigable tributaries can best be appreciated by a glance at the statistics of the great staple products of the twenty-one States and Territories intersected or bordered by this system.

Their products, contrasted with those of the whole United States, during the last census year (1880) were as follows:

Ninety eight per cent. of the sugar.
Ninety-four per cent. of the coal.
Eighty-nine per cent. of the corn.
Eighty-one per cent. of the pig-iron.
Seventy-six per cent. of the oats.
Seventy-four per cent. of the wheat.
Sixty-eight per cent. of the cotton.
Sixty-six per cent. of the tobacco.
Sixty per cent. of the hay.
Fifty-seven per cent. of the forest products.
Fifty-six per cent. of the wool.
Eighty-two per cent. of the swine.
Seventy-seven per cent. of the mules.
Seventy-four per cent. of the horses.
Seventy-three per cent. of the cattle.

Their total grain product during the year 1885 was as follows:

	Bushels.
Indian corn	1,729,924,000
Oats	514,100,000
Wheat	241,722,000
Barley	22,916,000
Rye	15,464,000
Buckwheat	5,655,000
Total	2,529,781,000

In other words, the States and Territories tapped by the navigable portions of the Mississippi River system produced grain to the extent of 45 bushels for every man, woman, and child in the United States, estimating the population that year at 55,000,000 souls. They are, then, not only the granary of the nation, but of the world.

V.—INTERNAL COMMERCE OF THE STATES INTERSECTED.

ESTIMATE OF ITS VALUE.

It is, of course, difficult to estimate the value of the internal commerce of the twenty-one States and Territories under consideration, for, unlike foreign commerce, it is not subject to the laws and regulations which necessitate a record of transactions with foreign countries.

The Chief of the Bureau of Statistics, in his first annual report on the internal commerce of the United States, published in 1877, estimated its value to be twenty-five times that of our total foreign commerce. His reasons for the estimate were as follows:

> The relative importance of internal and of foreign commerce may be inferred from the following comparative statements:
>
> | | |
> |---|---|
> | Estimated value of shipping (American and foreign) employed in our foreign trade | $200,000,000 |
> | Estimated value of the railroads of the United States | 4,600,000,000 |
>
> The value of the commodities embraced in our foreign commerce and the estimated value of commodities transported on railroads are as follows:
>
> | | |
> |---|---|
> | Value of imports and exports (foreign commerce) | $1,121,634,277 |
> | Estimated value of commodities transported on rail (internal commerce) | 18,000,000,000 |
>
> It appears from these estimates that the value of the railroads of the country is about twenty-three times the value of the shipping engaged in our foreign trade, and that the value of our internal commerce on railroads is about sixteen times the value of our foreign commerce.
>
> It is to be observed that these comparative statements embrace the value of our entire foreign commerce, whereas the data in regard to internal commerce relate only to railroads.
>
> If it were possible to ascertain the value of the commerce between the different sections of the country, on the ocean and gulf, and on the lakes, rivers, and other avenues of transportation, we should probably find that the total value of our internal commerce is at least twenty-five times greater than the value of our foreign commerce.

If we accept this estimate as correct, we must multiply the present foreign commerce of the United States (which during the fiscal year ending June 30, 1886, was $1,314,960,966 in value) by twenty-five to reach the present total of our internal commerce. The result is the enormous sum of $32,874,024,150, or more than double the value of the foreign commerce of the whole world.

The question now arises, What portion of this internal trade belongs to the twenty-one States and Territories tapped by the navigable portions of the Mississippi and tributaries? In view of the facts and figures above given in regard to their percentage of staple products, it is doubtless fair to assume that their internal trade is at least half that of the United States. The logical conclusion, then, from the above premises is that the internal commerce of the twenty-one States and Territories is upward of $16,000,000,000 in value, or greater than the foreign commerce of all nations combined.

But suppose this estimate by the Chief of the Bureau is too high (as a discussion of the subject in a subsequent report seems to indicate), and that it be reduced one-half, even then the internal commerce of the twenty-one States and Territories would be as great as the foreign commerce of Great Britain, France, and Germany combined.

HOW TRANSPORTED.

In former days, before the era of railways, the products of the valley were carried almost entirely by river. It was also the principal passenger line. The small boats of the early Spanish and French explorers floated upon its waters. The early emigration from the East to the West relied upon the waters of the Ohio. The trading posts of the valley were established upon the banks of the various navigable streams, and with the growth of the towns, villages, and cities the traffic upon the Mississippi and tributaries grew to large proportions. But how is it to-day?

Perhaps no fairer illustration can be found than the receipts and shipments of freight of Saint Louis, situated as it is in the center of this great river system.

During the past ten years the total receipts and shipments of this commercial center were, in tons, as follows:

Year.	By River.	By Rail.
	Tons.	*Tons.*
1877	1,242,155	5,137,238
1878	1,329,375	5,655,866
1879	1,366,115	6,948,794
1880	1,931,385	8,852,204
1881	1,736,435	10,213,487
1882	1,571,985	10,649,782
1883	1,306,565	10,408,939
1884	1,035,260	10,052,206
1885	1,013,240	10,301,301
1886	1,132,100	10,728,110
Total	13,664,615	88,957,927

In brief, ten years ago 19.4 per cent. of annual freights of Saint Louis were transported by river and 80.6 per cent. by rail; but during the last year only 9½ per cent. were transported by river.

INCREASING DEMAND FOR TRANSPORTATION.

The importance of keeping the inland water lines in good repair may be seen from the past demand of the valley for transportation routes to the sea-board, but still more clearly from an examination of its probable future growth and development. In business matters we can safely judge the future by the past. What material progress, then, do we find, and what may we expect in the future?

The statistics of corn grown in the twenty-one States and Territories intersected by the Mississippi and tributaries during the years 1860 and 1885 were as follows:

	Bushels.
1860	651,514,436
1885	1,729,924,000

This was an increase of 165 per cent. in twenty-five years.

The growing demand for transportation facilities may be further illustrated by reference to the statistics of improved lands at the time of the census of 1870 and 1880.

State.	Total area.	Improved land, 1870.	Improved land, 1880.
	Acres.	*Acres.*	*Acres.*
Arkansas	33,406,720	1,859,821	3,595,603
Illinois	35,462,400	19,329,952	26,215,154
Indiana	21,637,760	10,104,279	13,933,738
Iowa	35,228,800	9,396,467	19,866,541
Kansas	52,043,520	1,971,063	10,739,566
Kentucky	24,115,200	8,103,850	10,731,682
Louisiana	26,461,440	2,045,640	2,739,972
Minnesota	53,459,840	2,322,102	7,246,693
Mississippi	30,179,840	4,209,146	5,216,937
Missouri	41,824,000	9,130,615	16,745,031
Nebraska	48,636,800	647,031	5,504,702
Ohio	25,576,960	14,469,133	18,081,091
Tennessee	29,184,000	6,843,278	8,496,556
Wisconsin	34,511,360	5,899,343	9,162,528
Dakota	96,596,480	42,645	1,150,413
Indian Territory	44,154,240	.....	.....
Total	632,479,360	96,374,365	159,326,208

The contrast shows that in 1870 only 15 per cent. of the area of these great and productive States and Territories was then improved, and that 85 per cent. remained for development, and that in 1880 but 25 per cent., or one-fourth part, was improved.

The coal-fields of the Valley States furnish still more striking evidence to the same effect. Their product and its increase in fifteen years were as follows:

	Tons.
1870	6,793,098
1885	32,118,208
Increase	25,325,110

Or more than 370 per cent.

That increase is trifling compared with what we may expect in the near future, for the coal deposits of these States are the most extensive that exist in the whole country, yet the least developed.

These facts and figures clearly indicate that we may expect a regularly increasing demand for cheap, convenient, and untrammeled transportation from the valley to the seaboard until its fertile fields are adequately populated and developed.

Unless this reasonable demand is supplied by a thorough and comprehensive improvement of the channels of the Mississippi and its confluents, the natural development of the great interior States will fall far short of their possibilities, and the consumers of the East, as well as the producers of the West, will suffer from the neglect.

VI.—ALLUVIAL LANDS.

AREA AND PRESENT CONDITION.

The area of the alluvial lands along the Lower Mississippi and tributaries is 41,193 square miles, being as large as the combined areas of New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, and New Jersey. It is three-fourths the extent of England, which contains 52,922 square miles, and more than eighteen times larger than Holland, which is a rich country formed by the protection of alluvial lands along certain rivers and the Zuyder Zee. This area of the Mississippi Delta, reduced to acres, is 26,363,520. According to those most familiar with the subject, and who are competent judges, all but 10 per cent. of these lands are susceptible of cultivation and of unsurpassed fertility. We have, then, 23,727,168 acres to be protected, their increased values to be added to the general wealth and their products to help swell the sum total of the national industries.

What is their present condition? We find that in 1870 but 1,969,238 acres, or less than 8 per cent. of their area, was under cultivation.

Why are these rich and productive lands thus neglected? Chiefly, if not solely, because of the periodical destruction of crops, buildings, and danger to health and even life from the overflow of the river.

PRESENT VALUE.

The value of the above 1,969,238 acres, improved in 1870, was, according to an estimate by the Chief of Engineers, U. S. Army, $80,431,221, or $40.84 per acre. The remaining 21,757,930 acres which are unimproved, but susceptible of cultivation, had but trifling values, say from 10 cents to $2 per acre. Mr. Ellis said, in his report to the House of Representatives in 1876: "Millions of acres have been sold for taxes; others, after advertisement, have failed to bring anything whatever." It is believed $1.25 was in 1876 a fair estimate of the value per acre of those unimproved lands. We reach, then, the following conclusion, supposing the values and areas cultivated have not materially changed:

Value of improved lands	$80,431,221
Value of unimproved lands	27,197,612
Total value	107,628,833

FUTURE VALUE IF PROTECTED.

Now, let us consider their possibilities. The totals resulting are so large that only by comparison can we appreciate the fairness of the estimate.

Probably no one will dispute the assertion that the Delta of the Mississippi is as productive as the Delta of the Rhine in the Netherlands, and if the statistics of the value of the protected lands in Holland and

other provinces of the Netherlands were accessible, it would be an interesting and fair comparison, because of the similarity existing between these countries. But as they are not within reach, we will take for a comparison the farm lands of New Jersey. We select that State, because its farm lands have a very high value per acre, and for the further reason that no lands in the country are too fertile and valuable to be contrasted with the possibilities of the Mississippi Delta.

According to the United States census of 1880 the average value per acre of the 2,096,297 acres of improved lands in New Jersey, including farms, fences, and buildings, was $91 per acre.

The alluvial lands of the Mississippi, if protected and improved, would, at that rate per acre, be worth $2,399,080,320. As their present value is but $107,628,833, the increase would be more than $2,000,000,000.

PRODUCTIVE CAPACITY.

It certainly is not an overestimate of the productive capacity of the alluvial lands to say they will yield on an average as much as the farm lands of New Jersey. Such a comparison doubtless underestimates their capacity. The value per acre of the products of the improved lands of said State was, in 1880, $14.14. At that yield per acre the alluvial lands would annually produce to the value of $372,780,172. This is a moderate estimate, as may be seen from the following calculation, made from a different basis: According to the official report of 1877, of the United States Commissioner of Agriculture, it takes, in the cotton-producing States of this country, an average of 2.63 acres to produce one bale of cotton. No one familiar with the alluvial lands will dispute their wonderful capacity for cotton-growing. At the same rate, 2.63 acres to the bale, the total area would produce 9,021,736 bales. Reducing that to pounds, at 440 pounds to the bale, we have a total of 3,969,563,840 pounds. At 11 cents per pound the total value of their annual crop would be $436,652,022. It is evidently nearer the truth to say that the overflowed lands, if protected and cultivated as carefully as the farm lands of New Jersey, would produce on an average at least one bale to every acre. It is an assertion which any planter familiar with the wonderful fertility, depth, and inexhaustibility of the alluvial soil will readily indorse. At that rate the Delta of the Mississippi would produce each year 23,727,168 bales, worth, at 440 pounds to the bale and at 11 cents per pound, $1,148,394,931.

CONTRASTS WITH THE NETHERLANDS.

The history of the protection and development of the Netherlands (low countries), an exact parallel in formation to the alluvial lands of the Mississippi Valley, proves very clearly that we have not overestimated the importance of the subject.

The United Kingdom of the Netherlands contains but 12,680 square miles, and North and South Holland, two of the eleven subdivisions of the same, but 2,209 square miles. The whole of the Netherlands is made-land, having been formed by protection from the overflow of the Lower Rhine, the Maas, the Scheldt and other rivers, 90 lakes, and the Zuyder Zee. The total cost of their protection by dikes, embankments, and other works was $1,500,000,000. The annual cost of guarding, protecting, and repairing is stated to be from $2,000,000 to $2,500,000. Probably that country, in proportion to its population, is the wealthiest nation upon the face of the earth.

An elaborate review of the same says:

> The country is everywhere well peopled, and no population in the world exhibits a more uniform appearance of wealth, comfort, and contentment.

Holland not only has capital enough for home use, but the Dutch of Amsterdam are capitalists who have a large surplus to lend for public improvements and large enterprises in other nations. Yet all the wealth of this rich and commercially powerful kingdom was accumulated in an alluvial country having an area less than one-third that of the alluvial lands along the Lower Mississippi.

We will profit by their example if we protect our own lands from overflow—lands which are equally productive and far more easily and cheaply protected. The Dutch are, as a nation, economical and conservative. We, who claim to be progressive, should display equal enterprise in adding to the sum total of our national wealth, particularly when it can be done incidentally to a more important work—the improvement of navigation.

THE QUESTION OF PROTECTION.

If incidentally to the improvement of navigation the rich alluvial lands of the Lower Mississippi Valley should be protected from destructive floods, and almost fabulous additions made to the taxable wealth of the country, millions of citizens would be benefited and none injured. But before stating the facts and figures it may be well to notice some of the popular misunderstandings of this important subject.

The Mississippi River Commission, who now have in charge the work of improvement, have repeatedly, since their appointment, been termed by the press the "Levee Commission," thereby conveying to the mind of the public the erroneous impression that their chief duty was to serve the interest of one section of the valley and build levees. What are the facts? The act creating the Commission is entitled, "An act to provide for the appointment of a 'Mississippi River Commission,' for the improvement of said river from the head of the passes, near its mouth, to its head waters," which head waters are in the State of Minnesota, near the northern boundary of the United States. Section 4 of the act prescribes their duty as follows:

> It shall be the duty of said Commission to take into consideration and mature such plan or plans as will correct, permanently locate, and deepen the channel, and protect the banks of the Mississippi River; improve and give safety and ease to the navigation thereof; prevent destructive floods; promote and facilitate commerce, trade, and the postal service.
>
> The Commission shall report in full upon the practicability, feasibility, and probable cost of the various plans known as the jetty system, the levee system, and the outlet system, as well as upon such others as they deem necessary.

This correction is important, for such misapprehension tends to throw discredit upon a great national work.

Another source of misunderstanding and opposition has been the unnecessary use of the word "reclamation" in many bills which have in the past been introduced in Congress upon the subject of river improvement. That word was not used in the act creating the Commission, nor is it one of their duties to do farming for individuals at Government expense. An emphatic disclaimer of such a purpose was made in the House of Representatives by the chairman of the Committee on the Mississippi, Hon. E. W. Robertson, in a speech advocating the appointment of a commission. He said of the bill then pending:

> It contemplates the improvement of the chief avenue of transportation of a great commercial nation. It also seeks to protect from floods and pestilence over 26,000,000

acres of the most fertile and productive lands upon the face of the earth. It does not, as is so often alleged, aim at the reclamation of those lands, or seek to perform work which properly belongs to the individual citizen. The word "reclamation" is not used in the bill. It is well that we understand the distinction at the outset of this discussion, for the wrong use and confusion of terms have given the opponents of river improvement an opportunity to misinterpret, and therefore misrepresent, the object we seek to accomplish. The word "reclamation" has furnished them with the key-note of unjust criticism. We simply ask protection from the frequent ravages of this great river, over which no power but the General Government has legal control, in order that we who possess lands along its course may have an opportunity to reclaim and cultivate them at our own expense.

In another speech in the House of Representatives, May 18, 1882, on the subject of the "protection of the valley," he was still more explicit, and stated the case with great force, as follows:

In brief, we ask the protection not simply of alluvial lands, but agriculture in a broad and national sense; not only agriculture, but manufactures, commerce, the postal service, and the people themselves of the lower valley, an alluvial area embracing 41,000 square miles, or nearly as large as all New England; three times the area of the celebrated valley of the Nile, formerly the granary of the oriental world; and eighteen times the size of Holland—a magnificent empire in its extent and resources.

From what do we ask protection? From the overflows of a great national sewer filled with the drainage of the twenty-eight States and Territories; from the overflow of a great national highway of commerce, the trunk line of forty-two navigable tributaries, which supply water transportation to twenty-two States and Territories; from the overflow of a Government postal-route, a river subject to the admiralty and maritime jurisdiction of the United States; from an enemy in whose clutches a single State is as powerless as a little child in the deadly clasp of the octopus; from a river which in itself and in its relations to the nation is exceptional.

VII.—DESTRUCTIVE FLOODS.

The destructive floods of the Mississippi Valley not only sweep over the alluvial lands of the lower valley between Cairo and the Gulf, but frequently occur in the valleys of the Upper Mississippi, the Missouri, Ohio, Red, Arkansas, Tennessee, Cumberland, Yazoo, and other rivers of this comprehensive system, carrying with them enormous destruction to crops, roads, railroads, postal-routes, buildings, live-stock, commerce, and industries. They are often attended with the loss of life itself.

FLOODS OF 1868 AND 1871.

Mr. Morey, in his report to the House of Representatives during the Forty-second Congress, said of the floods of 1868 and 1871:

The destruction caused by the last two floods above named in the Ouachita Valley is almost incredible. A valley of almost unexampled fertility, capable of raising, beside corn and stock in great abundance, at least 75,000 bales of cotton, worth, at the average price of this season, more than $5,000,000, was inundated, plantations destroyed, buildings washed away, cattle and swine by the thousand starved or drowned, etc.

FLOOD OF 1874.

Another flood in 1874 was still more destructive. Mr. Ellis, in his report to the House, in 1876, says of it:

The loss by the flood of 1874 was $13,000,000. This year, so far as it can be ascertained, it is $2,000,000. And this makes the total sum $15,000,000 in actual material wealth within three years.

FLOOD OF 1881.

The great flood throughout the length and breadth of the Mississippi Valley in the spring of 1881 was unusually destructive, the damage amounting to many millions of dollars. As it is impossible to give an accurate estimate of the total damage, we will give a few illustrations by extracts from the press dispatches published in leading daily papers of that time:

Omaha, April 25.—The flood still continues. The river rose 2 inches last night at this point, but it has done no further damage to manufacturing interests on the water front. Much lumber in the yards has been removed to higher ground. The Union Pacific shops and smelting works, Boyd's packing-house and distillery are still under water, and 1,600 men are out of employment.

At Council Bluffs one-half of the city is under water, and 600 people are homeless. All passengers from Eastern trains are transferred by boat to the Union Pacific depot.

A dispatch from Sioux City announces a fall of 6 inches at that point.

This morning high winds set in from the north and stirred up the vast body of water north of the long embankment leading up to the Union Pacific bridge on the east side, and the high waves dashing against it soon washed out the dirt close up to the ties. This was discovered just in time to prevent an accident, and a large force of men were put to work piling sand bags along the north side, thus breaking the force of the waves and saving the embankment. Two hours more and the water would have taken out a section of several hundred feet of the approach to the bridge. The transfer of passengers, baggage, and mails is continued by boat at Council Bluffs.

There is no material change in affairs here since yesterday. The Union Pacific road is running regular trains.

The village of Waterloo, near Elkhorn River, 25 miles west of Omaha, is flooded to a depth of 5 feet.

The overflow, which covers the country for many miles, is doing considerable damage to farms in Elkhorn Valley.

Some citizens of Waterloo claimed their town was flooded owing to the Union Pacific Railroad embankment holding the water back, and they threatened to open a channel through it, but were prevented by the timely appearance of a sheriff and posse of constables from Omaha. Six ice-houses, located in Omaha Bottoms, have been wrecked by high water and rendered a total loss. A large wagon-bridge came down the river to-day, landing on the east side of the smelting works.

Hannibal, Mo., April 25.—The Sny levee broke at 3 o'clock this morning, at a point about a mile and a half above East Hannibal. The crevasse is 130 feet wide, and the water is still cutting both below and above the break. Near East Hannibal there are several weak points liable to go at any moment. The river is 19 feet and 1 inch above low-water mark, and is still rising, but very slowly.

Trains from Quincy to Hannibal, via the Chicago, Burlington and Quincy Railroad, are abandoned, the track between Fall Creek and East Hannibal inside the levee being under water. It is estimated that 30,000 acres of fall wheat had been sown inside the levee, all of which is now a total loss. There are nearer 10,000 acres, the yield of which heretofore had averaged 30 bushels to the acre. This season it stood finer than ever. The loss on wheat alone is placed at $1,000,000. The river is still slowly rising, and has now nearly reached the highest point of last year.

Saint Louis, April 25.—The river is rising and rapidly approaching the danger line. A rise of another foot and the water will submerge some of the low lands in the northern part of the city, and inundate part of the bottoms on the Illinois side of the river. Much apprehension is felt for property on both sides of the river, and measures are being taken to protect it. Old steam-boat men are predicting a flood of unusual magnitude, and say that if the present warm weather continues, and particularly if there is much rainfall in the north, a freshet equal to that of 1844 will probably follow.

Bismarck, April 25.—One mile of track and thirty pile-bridges washed away constitute the extent of damages on the Northern Pacific extension. Night and day forces are at work repairing, and trains to the end of the track are promised in a few days.

Kansas City, April 25.—The levee which was built to protect the town of Harlem and the broad bottom lands opposite the city from overflowing gave way on Saturday night, and a strong current, 10 feet deep, is now running at the rate of 5 or 6 miles an hour over the tracks of the Hannibal and Saint Joseph, Council Bluffs, Chicago, Rock Island and Pacific, and Wabash roads. For nearly a mile all these tracks are supposed to be washed out. The levee gave way about 10 o'clock at night. The water is overflowing a large number of farms to the depth of from 4 to 6 feet.

Saint Paul, Minn., April 25.—A special from Fergus Falls says the upper country is an unbroken sheet of water, beginning at a point about 25 miles below Saint Vincent and extending this way to the vicinity of Crookston. Twenty-five miles south of Stevenson the water has swept away the track of the Saint Paul, Minneapolis and Manitoba Railroad, and all railroad travel is suspended.

Saint Paul, Minn., April 27.—The flood at Saint Paul, caused by the coming down of high water in the Minnesota River, continues. The water has now reached 18 feet in the channel—3 feet higher than during the June rise of last year, and the highest point reached since the great flood of 1867. There is to-day scarcely a foot of uncovered land in the entire country west of Saint Paul, flat lands, over which the waters are not now running riot. Old residents there affirm that although they have frequently seen the water cover the lowlands, they have never known the current so strong as to sweep over them with such overwhelming velocity as it is doing to-day. The current carried away the bank on which Fifth street is built this morning, and there is only a single road remaining uncovered between river and bluff. A visit to the scene to-day found hundreds of houses isolated by water and the occupants busy moving. The sides of the raised embankment were filled in many places with all manner of household effects, which had been brought in boats from the inundated residences, and around which were the owners watching and guarding the same while awaiting the arrival of vehicles to transport the goods to some place of safety.

Omaha, Nebr., April 27.—The river has fallen 10 inches here. A further fall of 18 inches is reported at Sioux City. Information having been received at Nebraska City that many people living on the river north of that city were in great peril, one of the ferry-boats started out yesterday and rescued nearly 200 men, women, and children, some of whom had been without food two or three days, and were suffering extremely from hunger. These people were lodged in the opera house, the city hall, churches, and other public buildings. * * *

East Nebraska, on the Iowa side of the river, is entirely flooded, and all the inhabitants have been compelled to abandon their homes and seek refuge in Nebraska City proper. Thousands of people along the river bottoms in Nebraska, Missouri, Iowa, and Kansas are homeless and destitute Passengers, mail, and baggage trains arrived here same as the last few days, only did it more rapidly than heretofore. It will be at least one week before the railroads get into the same shape as before the flood.

Saint Joseph, Mo., April 27.—The river at this point is 22 feet 6 inches above low-water mark and rising slowly. Many families have been rescued from their inundated houses in the bottom lands during the day, generally in destitute circumstances. All the available flat-boats have been in use removing people and stock. An old man and his wife, 76 to 80 years of age, were to-day rescued from the Elmwood bottom, where they were living in a small one-story house, having been two or three days surrounded by the swift current, a mile from land, and the water 2 feet deep in the house. * * *

Atchison, Kans., April 27.—Contrary to expectations, the river has continued to rise steadily during the past twenty-four hours and is now 22 feet 4 inches above low-water mark and at least 20 inches above the level of the great flood of 1844. The Missouri Pacific road continues to afford the only connection with the East, and it has to send its passengers and mails around by way of Topeka.

Chicago, April 20.—The total loss of property by the flood on the Missouri River and its tributaries between Sioux City and Bismarck is estimated at $2,500,000. Below Sioux City, including the damage done at Omaha, Council Bluffs, Kansas City, and the great overflow on both sides of the Missouri between these cities and Saint Louis, the amount of loss is computed at $1,500,000.

FLOOD OF 1882.

In the spring of 1882 another destructive flood spread over the Lower Mississippi Valley. Its damage in the States of Mississippi and Arkansas was described in the following debate in the United States Senate, February 23, 1882:

Mr. GEORGE. Mr. President, I should like to be indulged in making a remark or two explanatory of the magnitude of the disaster referred to in the joint resolution.

The district overflowed from the breaking of the levee embraces all the Mississippi Delta between Memphis and Vicksburg, about 15 miles in length and about 40 miles in breadth. All of it is either now under water or will be in a short time. I desire also to state, for the information of the Senate, that four-fifths of the population which inhabit that district is composed of colored laborers, who have not the means of support during the time when this overflow will necessarily interrupt labor.

Mr. INGALLS. What is the estimated number of laborers who have been rendered destitute by this inundation?

Mr. GEORGE. They inhabit a district about 150 miles long by about 40 wide. I suppose there must be from 50,000 to 75,000 inhabitants in that district.

Mr. TELLER. What proportion of them will be rendered destitute?

Mr. GEORGE. Four-fifths. I desire also to state, for the information of Senators who are not familiar with the length or duration of an overflow in the Mississippi bottoms, that it is not an affair of a day or a week. The overflows in that section of the Mississippi bottoms generally continue from four to six weeks before there is a subsidence of the waters, and during all that time there is a total suspension of all labor; the water gets all over the whole country.

I have confined my statement to the destitution in Mississippi. There are contiguous districts on the western bank of the Mississippi River, in the State of Arkansas, that suffer from the same overflow. The Senator from Arkansas [Mr. Garland] will make a statement upon that subject.

I shall ask to have the joint resolution referred to the Committee on the Improvement of the Mississippi River and its Tributaries, in the hope that that committee may act upon it with promptness, as the matter will not admit of delay.

Mr. GARLAND. The information that the Senator from Mississippi gives in reference to his own State applies exactly to the State of Arkansas, which is in front of the overflowed Mississippi River. The intelligence that I receive from that portion of the State of Arkansas through telegrams, letters, and newspapers represents the destruction there as widespread and as absolutely appalling and unprecedented. The overflow has taken barns and granaries, and has swept away the last stock the farmers and planters of that country owned and had to live upon.

I am not prepared in my own mind to say just exactly what relief or what measure of relief Congress can or should afford, but certainly there is now a just demand for relief, if it is in the power of Congress to grant it. I hope the joint resolution will be referred to the committee indicated by the Senator from Mississippi, and that that committee may see proper to give it early consideration and report some measure for the relief of those suffering people.

Mr. HAMPTON. I just came into the Senate when the joint resolution was sent to the Clerk's desk and read, and as I am very familiar with that section of country, having been there a great deal, I wish to make a statement in regard to it.

The area of land which will be overflowed if the river rises as high as it has done formerly will cover the richest portion of the Mississippi Valley on the Arkansas side and on the Mississippi side. I am more familiar with it on the Mississippi side than on the Arkansas side; but it will cover the most productive and finest cotton-growing territory in the whole State. I have known the river to be at that point sometimes nearly 150 miles wide, for it covers from the Yazoo hills on the one side to the Arkansas bluffs on the other, and in that whole section of country, if the river is as high as these dispatches say it is, there will hardly be any land at all above overflow. There are only a few spots in that great Mississippi bottom which are above overflow, and the destruction not only of stock, but of the incoming crop, will be so great that I have no hesitation in saying that the dispatches from the governor of Mississippi give but a faint idea of the destitution and starvation that will follow there.

My friend from Mississippi thinks that there are 75,000 people in this area covered. I think he has underestimated the number very much.

Mr. GEORGE. I spoke of the Mississippi side.

Mr. HAMPTON. On the Mississippi side I think the numbers would be very much larger than that. Nearly the whole of those people are colored people; they rent the land and the loss will fall upon them. They have made no provisions at all for immediate sustenance, and unless some aid can be given promptly, I have no question that there will be starvation and infinite suffering in that whole country.

FLOOD OF 1883.

In the spring of 1883 an unusually destructive flood in the Ohio River Valley submerged a large portion of the city of Cincinnati, which was very forcibly described in the following dispatch from Murat Halstead, February 16, 1883:

The loss of life has not been very great, but the destruction of household property is enormous, and clothing, sheltering, and feeding the poor who have fled from their homes will strain all resources. The care of property in the submerged district is a great task, and our military companies are out at night patrolling the streets. The school-houses are crowded with fugitives. The coal supply of the city is under water. The water-works are overwhelmed. The gas-works are submerged. Our condition is in many respects critical, but nothing but a sudden and immense rain-fall beyond all example can prevent our relief by the fall of the river. There are remarkable coincidences between this monstrous rise in the Ohio and the December overflows of the Rhine and Danube. The parallel between the Rhine especially and the Ohio in the origin, progress, extent, and duration of the floods is very striking, and the correspondence in the two cases may be traced also in the intelligent compassion and remarkable liberality with which the sufferings of those made homeless, whether on the Rhine or the Ohio, were regarded and relieved by the enlightened and the benevolent.

The above are but illustrations of the frequent and wholesale destruction and desolation caused by the floods throughout the length and breadth of the great valley. But they are sufficient to show that these floods pay no attention to State lines and that they are national in extent and magnitude.

VIII.—NATIONAL FEATURES.

NATIONAL IN EXTENT.

A river system in which twenty-one States and Territories have a direct business interest, and nearly all others an indirect interest; which intersects the great productive center of the continent, and by means of cheap transportation brings the producer and consumer into easy communication; which supplies a connecting link between internal and international commerce, is something more than sectional—it is emphatically national. The navigable portions alone of the Mississippi and tributaries are distributed among the States substantially as follows:

	Miles.		Miles.
Arkansas	2,375	Indian Territory	720
Missouri	1,950	Minnesota	660
Louisiana	1,925	Ohio	550
Mississippi	1,380	Wisconsin	520
Montana	1,310	Texas	440
Dakota	1,280	Nebraska	400
Illinois	1,270	West Virginia	390
Tennessee	1,260	Pennsylvania	250
Kentucky	1,230	Kansas	240
Indiana	840	Alabama	200
Iowa	830		

They also supply facilities for inland inter-communication by water between the following cities:

Saint Paul, Minn.	Nashville, Tenn.	Memphis, Tenn.
Pittsburgh, Pa.	Little Rock, Ark.	Minneapolis, Minn.
Cincinnati, Ohio.	Decatur, Ala.	Shreveport, La.
Louisville, Ky.	Cairo, Ill.	Sioux City, Iowa.
Omaha, Nebr.	New Orleans, La.	Quincy, Ill.
Peoria, Ill.	Saint Louis, Mo.	Parkersburgh, W. Va.
Vicksburg, Miss.	Kansas City, Mo.	Dubuque, Iowa.
La Crosse, Wis.	Keokuk, Iowa.	Jefferson City, Mo.
Wheeling, W. Va.	Knoxville, Tenn.	

And several hundred other cities and important commercial towns scattered, as they are, over different sections of a great and broad country.

If to these rivers we add the existing supplements, we find that they supply facilities for inland water inter-communication between twenty-five States and Territories.

Adding the projected or proposed supplements above described, they will supply the facilities for twenty-nine States and Territories.

And adding to the above other States and Territories which rest upon the Pacific and Atlantic Oceans, we find that the Mississippi and tributaries, with existing and proposed supplements, and the oceans on the east and west, will permit water inter-communication between forty-one States and Territories, or all but five of the total forty-six States and Territories of the entire Union.

NATIONAL IN LAW.

This river system is also national in law. The doctrine as declared by the Supreme Court of the United States in the case of the *Daniel Ball*, 10 Wallace, 557, is as follows:

Those rivers must be regarded as public navigable rivers in law which are navigable in fact. And they are navigable in fact when they are used, or are susceptible of being used, in their ordinary condition, as highways for commerce, over which trade and travel are, or may be, conducted in the customary modes of trade and travel on water. And they constitute navigable waters of the United States, within the meaning of the acts of Congress, in contradistinction from the navigable waters of the States, when they form in their ordinary condition, by themselves or by uniting with other waters, a continued highway over which commerce is, or may be, carried on with other States or foreign countries in the customary modes in which such commerce is conducted by water.

NATIONAL IN BENEFITS.

In its benefits, also, this net-work of water-ways is national. The consumer of the East and the producer of the West have a common interest in cheap transportation and cheap food. The recognition of this principle on the floor of the United States Senate should be considered by every one who, through wrong information, superficial observation, or sectional feeling, imagines that the improvement of the Mississippi River is a local movement. We refer to the tribute by Senator Bayard, who said in the United States Senate in June, 1880, in speaking of the improvements already made at the mouth of the river:

The results of such a work, if maintained according to present promise and to all reasonable hope, are magnificent and incalculable in their benefit, not simply to a State but to the entire Union, and not simply to the entire Union, but you may say the benefits are world-wide. It is making food cheaper for this world that the Mississippi River can perform its great carrying functions to bring the vast crops of products of the wheat lands, and the granary of this country and of the world, into the use of mankind in general.

NATIONAL IN DAMAGE.

As shown in a previous chapter the periodical floods of the valley are national in the extent and magnitude of their destruction. They are also beyond the jurisdiction and control of individual States, as was very clearly stated in the following extracts from a speech on this subject by Hon. E. W. Robertson, of Louisiana, in the House of Representatives May 18, 1882:

On the west bank of the Mississippi there was built a continuous line of levee extending from Louisiana into Arkansas. For about fifteen years past the levee has been broken for several miles above and below the boundary line dividing the two States. Arkansas, for some reason is indifferent to repairs at this particular place. The result is that the floods which sweep through the gap in Arkansas continue down through Louisiana in the rear of her system of levees, thereby nullifying all the efforts of the latter State to secure protection. Does any one contend that Louisiana has jurisdiction over Arkansas? The two States can not even make a binding agreement on the subject of protection, for the Constitution expressly denies their right to enter into treaties between themselves. It is, then, worse than idle to tell us of the lower valley to protect ourselves. * * * Can States combine to accomplish this protection, "to provide for the common defense and general welfare?" Not at all, for they are expressly prohibited by section 10 of the same article, which says: "No State shall enter into any treaty, alliance, or confederation."

How, then, can the States of the lower valley agree upon a uniform plan of protection from their common enemy, the great and national Mississippi in flood-time? They can not. They are powerless. They are helpless, and subject to the mercy of the floods.

They invoke, then, the aid of that Federal power whose fundamental object is the protection of its own citizens and its own States.

NATIONAL IN POLITICS.

The political features of the Mississippi and tributaries are also national. If to the Representatives of the people in Congress from the sixteen Valley States and Territories were added those from Pennsylvania, West Virginia, Alabama, and Texas, which States are intersected by and have an extensive business interest in the navigable waters of these rivers, the result would show a very large majority in the House of Representatives. But it is unnecessary to urge this point, for all sections have a common interest in the great water-ways which intersect the granary of a common country. Instead of being an element of strife and sectional antagonism, the Mississippi is a bond of union. In this respect nature has accomplished for the people of the great interior what President Washington was so anxious to see accomplished for a similar purpose in another direction by artificial and costly means. We refer to his favorite project of uniting, by a canal, the Potomac River and a tributary of the Ohio, so as to bind, in commercial and political ties, the Mississippi Valley to the Atlantic States. To create a similar bond of union between the Pacific States and the rest of the country, Congress, at the close of the late civil war, granted to the Union and Central Pacific Railway Companies 20,000,000 acres of public lands, and loaned $53,121,632 in bonds.

Nature has, without cost, bound together the many States of the North and South and of the great interior in a perfect net-work of commercial ties.

The problem of new and enlarged commercial intercourse and fellowship between the two sections is not a difficult one, if we look to the Mississippi for a solution. This was demonstrated a few years ago by the enthusiastic response from both sides of the House of Representatives to the remarks by General Garfield, closing the debate on the Mississippi River Commission bill, with the following liberal sentiment:

> I rejoice in any occasion which enables Representatives from the North and from the South to unite in an unpartisan effort to promote a great national interest. [Applause.] Such an occasion is good for us both. And when we can do it without the sacrifice of our convictions and can benefit millions of our fellow-citizens, and can thereby strengthen the bonds of the Union, we ought to do it with rejoicing; for in doing so we inspire our people with larger and more generous views, and help to confirm for them and for our children to our latest generations the indissoluble Union and the permanent grandeur of this Republic. I shall vote for this bill. [Applause on both sides of the House.]

OPINIONS OF NATIONAL STATESMEN.

John C. Calhoun, the strictest of strict constructionists, said of it, in 1845, in a speech delivered at Memphis:

> The invention of Fulton has, in reality, for all practical purposes, converted the Mississippi with all its tributaries into an inland sea. Regarding it as such I am prepared to place it on the same footing with the Gulf and Atlantic coasts, the Chesapeake and Delaware bays, and the Lakes in reference to the superintendence of the General Government over its navigation. It is manifest that it is far beyond the power of individual or separate States to supervise it.

Vice-President Hendricks, in a speech delivered in 186 , said:

> That river is under the control of the Government for almost every purpose. It is a great channel of commerce; it is the nation's river; it does not belong to Louisiana, it does not belong to Mississippi; it is the river of all the States.

General Garfield, while in the House of Representatives, said, in support of the bill creating the Mississippi River Commission:

> I believe that one of the grandest of our material and national interests, one that is national in the largest material sense of that word, is the Mississippi River and its

navigable tributaries. It is the most gigantic single natural feature of our continent, far transcending the glory of the ancient Nile or of any other river on the earth. The statesmanship of America must grapple the problem of this mighty stream. It is too vast for any State to handle; too much for any authority less than that of the nation itself to manage. And I believe the time will come when the liberal-minded statesmanship of this country will devise a wise and comprehensive system that will harness the powers of this great river to the material interests of America, so that not only all the people who live on its banks and the banks of its confluents, but all the citizens of the Republic, whether dwellers in the central valley or on the slope of either ocean, will recognize the importance of preserving and perfecting this great natural and material bond of national union between the North and South, a bond to be so strengthened by commerce and intercourse that it can never be severed. [Applause.]

In his letter of July 10, 1880, accepting the nomination for the Presidency, General Garfield further said:

The Mississippi River, with its great tributaries, is of such vital importance to so many millions of people that the safety of its navigation requires exceptional consideration. In order to secure to the nation the control of all its waters, President Jefferson negotiated the purchase of a vast territory extending from the Gulf of Mexico to the Pacific Ocean.

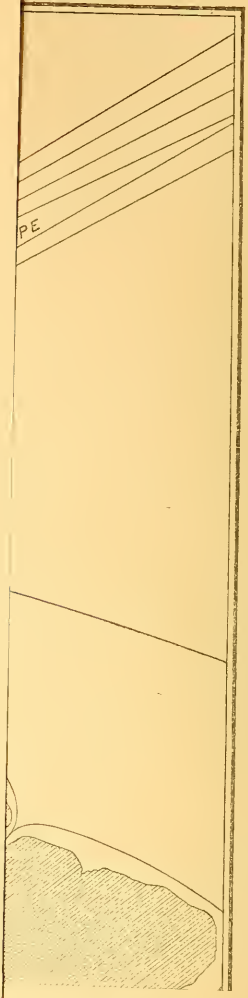
The wisdom of Congress should be invoked to devise some plan by which the great river shall cease to be a terror to those who dwell upon its banks, and by which its shipping may safely carry the industrial products of twenty-five millions of people.

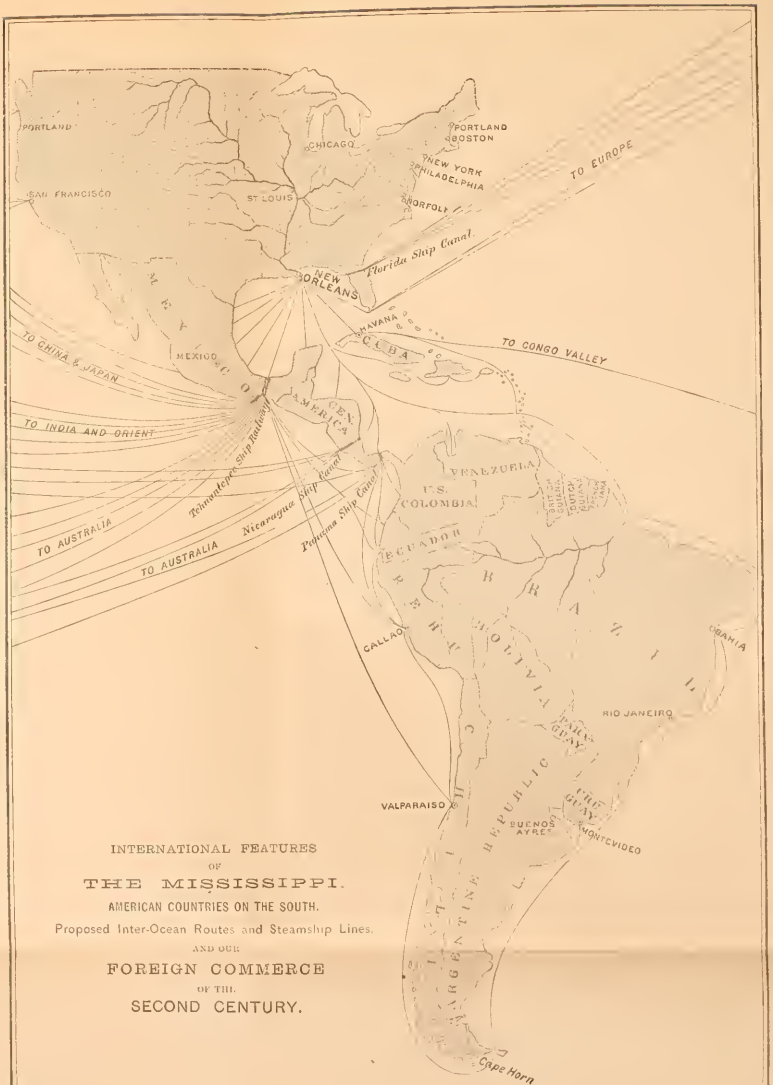
In his annual message to Congress in 1880 President Hayes said:

A comprehensive improvement of the Mississippi and its tributaries is a matter of transcendent importance. These great water-ways comprise a system of inland transportation spread like net-work over a large portion of the United States, and navigable to the extent of many thousands of miles. Producers and consumers alike have a common interest in such unequaled facilities for cheap transportation. Geographically, commercially, and politically, they are the strongest tie between the various sections of the country. These channels of communication and interchange are the property of the nation. Its jurisdiction is paramount over their waters, and the plainest principles of public interest require their intelligent and careful supervision, with a view to their protection, improvement, and the enhancement of their usefulness.

President Cleveland, in a speech delivered at Memphis, Tenn., October 15, 1887, said:

There flows past your city our nation's great river, which you rightly regard as a most important factor in your present and future welfare, and which I believe is universally recognized as a proper object of governmental protection and improvement. To Memphis and to every other city on its banks the improvement of this vast highway of commerce is so essential that they should be interested in having this and other proper work of the same description considered upon their merits, and freed from schemes sometimes questionable in their character and often extravagant in their demands.


PE



INTERNATIONAL FEATURES
OF
THE MISSISSIPPI.
AMERICAN COUNTRIES ON THE SOUTH.
Proposed Inter-Ocean Routes and Steamship Lines.
AND OUR
FOREIGN COMMERCE
OF THE
SECOND CENTURY.

OUR FOREIGN COMMERCE OF THE FIRST CENTURY.

General Course of Steamship Lines as shown on Berghaus' Chart of the World in 1879.

IX.—INTERNATIONAL FEATURES.

AMERICAN COUNTRIES AT THE SOUTH.

The Lower Mississippi is the trunk line of the 16,090 miles of navigable water-ways of this great river system. After intersecting or bordering twenty-one States and Territories of the great interior it converges and terminates at the Gulf of Mexico. Facing its mouth there are on the continent south of the United States fifteen Spanish-American Republics, the Portuguese-American Empire of Brazil, and four European colonies, which have a total population of 45,000,000 consumers and an area of 8,000,000 square miles, or more than double that of the United States.

Also, facing its mouth are the various West India Islands, with an area of about 100,000 square miles and a population of about 4,000,000 souls.

The names and ownership of the forty principal West India Islands and the several countries on the continent are, in detail, as follows:

Spanish West Indies: Cuba, Porto Rico, and Isle of Pines.

British West Indies: Jamaica, Bahamas, Trinidad, Grenada, St. Vincent, St. Lucia, Antigua, Barbuda, St. Christopher, Caymans, Virgin Islands, Tobago, Grenadines, Barbadoes, Dominica, Montserrat, Nevis and Rodonda, and Anguilla.

French West Indies: Martinique, Desirade, Les Saintes, Guadeloupe, and Marie Galante.

Dutch West Indies: St. Martin, Saba, Oruba, St. Eustatius, Curacoa, and Buen Ayre.

Danish West Indies: St. Thomas, Santa Cruz, and St. John.

Swedish West Indies: St. Bartholomew.

Venezuelan West Indies: Marguerite, Les Siete Hermanos, and Tortuga.

Independent West Indies: Hayti and San Domingo.

Central American republics: Guatemala, San Salvador, Costa Rica, Honduras, and Nicaragua.

Central American colony: British Honduras.

Mexican Republic: Comprising twenty-seven states, one territory, and a federal district.

South American republics: United States of Colombia, Chili, Argentine Republic, Ecuador, Uruguay, Peru, Venezuela, Bolivia, and Paraguay.

South American Empire: Brazil.

South American colonies: British Guiana, French Guiana, and Dutch Guiana.

In view of this colossal showing one would naturally expect to find a large portion of the foreign commerce of the United States to be with the neighboring sister American nations.

What are the facts?

OUR FOREIGN COMMERCE OF THE FIRST CENTURY.

The foreign commerce of the United States during the first century of its existence was mainly with Europe. The course of trade at the end of one hundred years is as follows:

	Per cent.
Exports to Europe and adjacent countries, on the east	81
Exports to American countries, on the south	10
Exports to British America, on the north	5
Exports to Pacific countries, on the west	4

The one-sided nature of our commerce may be seen by a glance at the accompanying diagr am illustrating the general course of steam-ship lines.

Our exports are also unsymmetrical in quality, 74 per cent. being the product of agriculture and only 15 per cent. the products of manufacture.

Of our total annual manufactures, which during the census year ending 1880 were $5,369,579,191 in value, but 2 per cent. finds foreign markets. This is indeed an astonishing state of affairs, a defect in our commercial relations with the outside world which must be cured, a weak spot which must be built up and strengthened.

The annual foreign commerce of the various American countries south of the United States during the last attainable year were, according to a recent report by Secretary Frelinghuysen, in response to a Senate resolution of inquiry, as follows:

	Total imports of merchandise.	Imports from United States.
Mexico	$42, 579, 000	$12, 704, 000
Central America	10, 000, 000	3, 178, 000
British Honduras	1, 164, 000	430, 000
United States of Colombia	23, 000, 000	6, 380, 000
Venezuela	10, 859, 000	2, 427, 000
British Guiana	10, 000, 000	1, 884, 000
French Guiana	1, 600, 000	102, 000
Dutch Guiana	1, 400, 000	320, 000
Brazil	79, 169, 000	8, 695, 000
Uruguay	17, 919, 000	1, 368, 000
Argentine Republic	80, 436, 000	5, 075, 000
Chili	53, 304, 000	3, 267, 000
Bolivia	900, 000	.....
Peru	12, 000, 000	1, 071, 000
Ecuador	6, 000, 000	629, 000
Spanish West Indies	62, 805, 000	13, 135, 000
Hayti and San Domingo	7, 724, 000	4, 054, 000
Total	420, 859, 000	64, 090, 000

In brief, we supply but 15 per cent. of the demand, or but about one-seventh part.

It is easy to understand why we control so insignificant a portion of this valuable trade when we examine the record of our exports to those countries from New Orleans, which port represents the principal southern outlet of the Mississippi Valley. The value of exports of domestic merchandise from New Orleans to the various and neighboring American countries and islands on the south was, during the fiscal year ending June 30, 1886, as follows:

From New Orleans to—	Amount.	From New Orleans to—	Amount.
Argentine Republic	$7,215	Hayti	
Brazil		Mexico	$562,572
Costa Rica	32,251	Dutch West Indies	
Guatemala	40,992	Dutch Guiana	
Honduras	150,127	Peru	
Nicaragua	63,841	San Domingo	
San Salvador		Cuba	29,618
Chili		Porto Rico	
Danish West Indies		United States of Colombia	14,896
French West Indies		Uruguay	
French Guiana		Venezuela	
British West Indies	9,776		
British Guiana		Total	1,063,660
British Honduras	152,372		

In other words the principal port on the southern coast of the United States is not doing its duty in supplying the Spanish and Portuguese American markets with our surplus products and manufactures. Nature has done everything to stimulate trade in this direction, but for some unaccountable reason it has been neglected by the United States.

Another astonishing defect in our foreign trade relations may be seen by reference to the total commerce of the various countries surrounding the Pacific Ocean and facing the west coast of the United States.

During a recent year their total annual imports and the share of the same supplied by the United States were as follows:

	Total imports from all nations.
Japan	$29,296,000
China	112,632,000
Hong-Kong	115,834,000
Philippine Islands	18,032,000
Dutch India	55,485,000
Siam	6,500,000
Straits Settlements	73,174,000
Australia, New Zealand, and Tasmania	118,600,000
Total	529,553,000

Of this total demand we supplied but $20,497,000 in value, or less than 4 per cent.

The above is the result of our foreign commerce during the first century of the Republic. What now is the outlook for the future?

OUR FOREIGN COMMERCE OF THE SECOND CENTURY.

A question of transcendent importance to the United States to-day is the development of new foreign markets for our surplus manufactures. It is useless to look to Europe for adequate outlets, for it is well supplied with manufactures of its own and has a surplus for export. We must rather look to the open, unsupplied, and inviting trade fields of Spanish and Portuguese America.

The question arises, how may these open and profitable fields be improved? Nature and common sense, the producer and consumer, all demand that the neighboring Mississippi Valley, with its great waterways, terminating at the Gulf, and with its surplus grain and provisions, take the lead in this new commercial movement. Direct and cheap

transportation by way of the river and Gulf, in place of indirect shipments from the valley up and down the Alleghenies and then around and back again to the Indies, Mexico, and South and Central America, is the true solution of this commercial problem. New York is chiefly occupied with European trade, but the port at the mouth of the Mississippi has the time as well as the favorable situation to make a success of American foreign commerce. It devolves upon her and the other trade centers of the valley to take the lead. The material interests of the entire country require it.

A few weeks before his assassination President Garfield said in an address to the graduating class at Annapolis: "The Pacific is yet to be opened, and you gentlemen will be the ones to scout it for us." The significance of this remark will be appreciated by reference to the preceding trade statistics, and the diagram showing the Isthmian barrier which now stands in the pathway of direct water communication between the great Mississippi Valley and the Pacific.

The opening of the Isthmus of Tehuantepec will shorten the water route between the mouth of the Mississippi and Hong-Kong 10,502 miles each way, or 21,004 miles on the round voyage, for steamers between those two ports must now go around distant Cape Horn. In brief, the piercing of this isthmus for the transit of ships will place the Mississippi Valley in direct water communication with Australia, the countries of the Orient, and the west coast of Central and South America. Then we may expect our due share of that valuable foreign trade of which the United States now controls but about 4 per cent. and in which New Orleans has no participation.

The adequate development of these long-neglected foreign markets of the three Americas on the south and of the Oriental countries on the west is the great material problem now awaiting solution.

These inviting trade fields constitute what may appropriately be termed our foreign commerce of the second century, and should, without further delay, be occupied with our surplus products and manufactures.

In his memorable tribute to America, in 1878, Gladstone said, in contrasting the commercial future of England and the United States:

> It is she alone who at a coming time can and probably will wrest from us that commercial primacy. We have no title; I have no inclination to murmur at the prospect. If she acquires it she will make the acquisition by the right of the strongest; but in this instance the strongest means the best. She will probably become what we are now, the head servant in the great household of the world, the employer of all employed, because her service will be the most and the ablest. We have no more title against her than Venice, or Genoa, or Holland has had against us.

There is no better way to facilitate the attainment of the "commercial primacy" here prophesied than by developing the international features of the Mississippi River and Valley.

APPENDIX.

Act creating the Commission.

AN ACT to provide for the appointment of a "Mississippi River Commission" for the improvement of said river from the Head of the Passes, near its mouth, to its headwaters.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That a commission is hereby created, to be called "The Mississippi River Commission," to consist of seven members.

SEC. 2. The President of the United States shall, by and with the advice and consent of the Senate, appoint seven commissioners, three of whom shall be selected from the Engineer Corps of the Army, one from the Coast and Geodetic Survey, and three from civil life, two of whom shall be civil engineers. And any vacancy which may occur in the Commission shall in like manner be filled by the President of the United States; and he shall designate one of the commissioners appointed from the Engineer Corps of the Army to be president of the Commission. The commissioners appointed from the Engineer Corps of the Army and the Coast and Geodetic Survey shall receive no other pay or compensation than is now allowed them by law, and the other three commissioners shall receive as pay and compensation for their services each the sum of $3,000 per annum, and the commissioners appointed under this act shall remain in office subject to removal by the President of the United States.

SEC. 3. It shall be the duty of said Commission to direct and complete such surveys of said river, between the Head of the Passes, near its mouth, to its headwaters as may now be in progress, and to make such additional surveys, examinations, and investigations, topographical, hydrographical, and hydrometrical, of said river and its tributaries, as may be deemed necessary by said Commission to carry out the objects of this act. And to enable said Commission to complete such surveys, examinations, and investigations the Secretary of War shall, when requested by said Commission, detail from the Engineer Corps of the Army such officers and men as may be necessary, and shall place in the charge and for the use of said Commission, such vessel or vessels, and such machinery and instruments, as may be under his control, and may be deemed necessary. And the Secretary of the Treasury shall, when requested by said Commission, in like manner detail from the Coast and Geodetic Survey such officers and men as may be necessary, and shall place in the charge and for the use of said Commission such vessel, or vessels, and such machinery and instruments as may be under his control, and may be deemed necessary. And said Commission may, with the approval of the Secretary of War, employ such additional force and assistants, and provide, by purchase or otherwise, such vessels, or boats, and such instruments and means, as may be deemed necessary.

SEC. 4. It shall be the duty of said Commission to take into consideration and mature such plan or plans, and estimates, as will correct, permanently locate, and deepen the channel and protect the banks of the Mississippi River; improve and give safety and ease to the navigation thereof; prevent destructive floods; promote and facilitate commerce, trade, and the postal service; and when so prepared and matured, to submit to the Secretary of War a full and detailed report of their proceedings and actions, and of such plans, with estimates of the cost thereof for the purposes aforesaid, to be by him transmitted to Congress: *Provided*, That the Commission shall report in full upon the practicability, feasibility, and probable cost of the various plans known as the jetty system, the levee system, and the outlet system, as well as upon others as they deem necessary.

SEC. 5. The said Commission may, prior to the completion of all the surveys and examinations contemplated by this act, prepare and submit to the Secretary of War plans, specifications, and estimates of costs for such immediate works as in the judgment of said Commission may constitute a part of the general system of works herein contemplated, to be by him transmitted to Congress.

SEC. 6. The Secretary of War may detail from the Engineer Corps of the Army of the United States an officer to act as secretary of said Commission.

SEC. 7. The Secretary of War is hereby authorized to expend the sum of $175,000, or so much thereof as may be necessary, for the payment of the salaries herein provided for, and of the necessary expenses incurred in the completion of such surveys as may now be in progress, and of such additional surveys, examinations, and investigations as may be deemed necessary, reporting the plans and estimates, and the plans and specifications, and estimates contemplated by this act, as herein provided for; and said sum is hereby appropriated for said purposes out of any money in the Treasury not otherwise appropriated.

Approved June 28, 1879.

River distances.

	Miles.
Mississippi.	
Port Eads, La. (mouth of the Mississippi), to—	
Fort Saint Philip, La	35
New Orleans, La	110
Donaldsonville, La	189
Baton Rouge, La	240
Bayou Sara, La	277
Mouth of Red River	308
Cerro Gordo, Miss	339
Natchez, Miss	376
Saint Joseph, La	433
Grand Gulf	450
Vicksburg, Miss	483
Arcadia, Miss	537
Auburn, Miss	587
Greenville, Miss	601
Arkansas City, Ark	624
Napoleon (mouth of the Arkansas River)	662
Concordia, Miss	689
Robertsonville, Miss	727
Modoc, Ark	760
Helena, Ark	797
Brinkley, Miss	832
Memphis, Tenn	887
Pilota, Ark	914
Osceola, Ark	970
State line of Arkansas and Missouri	1,011
Silver Top, Tenn	1,065
Hickman, Ky	1,112
Belmont, Mo	1,131
Cairo, Ill	1,152
Cape Girardeau, Mo	1,202
Grand Tower, Ill	1,232
Chester, Ill	1,272
Saint Genevieve, Mo	1,292
Carondelet, Mo	1,346
Saint Louis, Mo	1,352
Mouth of the Missouri River	1,373
Alton, Ill	1,377
Grafton, Ill	1,395
Mouth of the Illinois River	1,397
Milan, Ill	1,401
Darten, Mo	1,408
West Point, Ill	1,420
Hamburgh, Ill	1,439
Clarksville, Mo	1,457
Louisiana, Mo	1,469
Cincinnati, Ill	1,484
Hannibal, Mo	1,499
Quincy, Ill	1,520
Canton, Mo	1,539
Alexandria, Mo	1,562
Keokuk, Iowa	1,566
Nauvoo, Ill	1,581
Fort Madison, Iowa	1,589
Burlington, Iowa	1,610
Princeton, Ill	1,623
Muscatine, Iowa	1,671
Fairport, Ill	1,680
Rock Island, Ill	1,701
Davenport, Iowa	1,701
Cardova, Ill	1,724
Clinton, Iowa	1,744
Savannah, Ill	1,765
Galena, Ill	1,801
Dubuque, Iowa	1,826

	Miles.
Mississippi—Continued.	
Port Eads, La. (mouth of the Mississippi), to—Continued.	
Cassville, Wis	1,855
McGregor, Iowa	1,885
Prairie du Chien, Wis	1,188
De Soto, Wis	1,928
Brownsville, Minn	1,956
La Crosse, Wis	1,973
Homer, Minn	2,002
Winona, Minn	2,008
Alma, Wis	2,047
Lake City, Minn	2,074
Red Wing, Minn	2,089
Hastings, Minn	2,117
Saint Paul, Minn	2,147
Falls of Saint Anthony, Minn	2,161
Missouri.	
Mouth to—	
Saint Charles, Mo	28
Hamburgh, Mo	48
Murdock, Mo	51
Augusta, Mo	58
Washington, Mo	65
Bates, Mo	82
Hermann, Mo	92
Bluffton, Mo	100
Barkersville, Mo	125
Mouth of the Osage River	130
Jefferson City, Mo	136
Burlington, Mo	151
Eureka, Mo	156
Searcy, Mo	180
Arrow Rock, Mo	211
Saline City, Mo	223
Glasgow, Mo	234
New Frankfort, Mo	248
Miami, Mo	288
Lexington, Mo	345
Sibley, Mo	380
El Paso, Mo	403
Kansas City, Mo	431
Leavenworth, Kans	469
Atchison, Kans	502
Petersburgh	526
Saint Joseph, Mo	549
Dallas	580
Forest City, Mo	607
Arago, Nebr	633
Brownsville, Nebr	661
Nebraska City, Nebr	708
Liberty	768
Plattsmouth, Nebr	784
Omaha, Nebr	806
De Soto	845
Little Sioux River	929
Dakota, Dak	996
Sioux City, Iowa	1,019
Elk Point, Dak	1,070
Yankton, Dak	1,161
Niobrara City, Nebr	1,214
Fort Randall	1,268
Cedar Island	1,313
Fort Thompson	1,424
Fort Pierre	1,528
Fort Sully	1,546
Little Cheyenne	1,610

River distances—Continued.

	Miles.
Missouri—Continued.	
Mouth to—	
Standing Rock	1,766
Fort A. Lincoln	1,880
Bismarck	1,886
Fort Clark	1,951
Fort Berthold	2,030
Little Missouri River	2,070
Knife River	2,105
White Earth River	2,155
Big Muddy River	2,225
Fort Buford	2,304
Mouth of the Yellowstone River	2,305
Fort Kip	2,401
Fort Lawrence Joab	2,456
Fort Copeland	2,565
Fort Peck	2,584
Harvey's Point	2,640
Round Butte	2,701
Muscle Shell River	2,769
Carroll	2,810
Grand Island	2,869
Antoine Rapids	2,947
Eagle Creek	3,019
Fort Hervey	3,084
Fort Benton, Mont	3,092
Great Falls, Mont	3,127
Ohio.	
Cairo (mouth of the Ohio) to—	
Paducah, Ky. (mouth of the Tennessee)	50
Smithland, Ky. (mouth of the Cumberland)	62
Golconda, Ill	80
Weston, Ky	105
Shawneetown, Ill	125
Uniontown, Ky	142
Mount Vernon, Ind	160
Vernon, Ind	193
Evansville, Ind	200
Owensborough, Ky	240
Troy, Ind	270
Rome, Ind	300
Alton, Ind	322
Rockhaven, Ky	367
New Albany, Ind	395
Louisville, Ky	400
Bethlehem, Ind	431
Madison, Ind	451
Mouth of the Kentucky River	463
Florence, Ind	480
Warsaw, Ky	481
Belleview, Ky	506
Claysville, Ky	530
Covington, Ky	541
Cincinnati, Ohio	541
Palestine, Ohio	556
Point Pleasant, Ohio	567
Augusta, Ky	587
Maysville, Ky	609
Rome, Ohio	637
Portsmouth, Ohio	659
Ashland, Ky	693
Huntington, Va	700
Gallipolis	746
Pomeroy, Ohio	766
Syracuse, Ohio	770
Bellville, Ohio	808
Parkersburgh, W. Va	829
Marietta, Ohio	841
Newport, Ohio	857
Powhattan	906
Belair, Ohio	922
Wheeling, W. Va	926
Stubenville, Ohio	950
Liverpool, Ohio	976
Rochester, Pa	994
Pittsburgh, Pa	1,021

	Miles.
Red.	
Mouth to—	
Black River	40
Normand	83
Cassandria	99
Pineville	139
Montgomery	205
Campte	261
Groff's Bluff	289
Brownsville	296
Caushatta	316
East Point	351
Shreveport, La	456
Egypt	529
Fulton	676
Lanesport	776
Rowland	856
Shawnee Town	901
Jonesborough	921
Pine Bluff	961
Slate Shoals	986
Arkansas.	
Mouth to—	
Arkansas Post	60
Douglas	90
Richland	130
Pine Bluff	164
Paw Paw	231
Little Rock, Ark	278
Union City	340
Dardanelle, Ark	394
Roseville	462
Van Buren, Ark	526
Fort Smith	533
Weber Falls	621
Fort Gibson, Ind. Ter	668
Wichita, Kans	884
White.	
Mouth to—	
St. Charles	83
Clarendon	134
Duvall's Bluff	175
Augusta	283
Jacksonport	360
Batesville	403
Sylamore	445
Buffalo City	509
Dubuque	616
Forsythe, Mo	669
War Eagle	779
Tennessee.	
Paducah, Ky. (mouth), to—	
Newburgh	61
Johnsonville	116
Perryville (east)	150
Saltillo	200
Pittsburgh Landing	230
Eastport, Miss	263
Georgetown, Ala	279
Tuscumbia, Ala	295
Florence, Ala	300
Muscle Shoals	300
Knoxville, Tenn. (about)	759
Cumberland.	
Mouth to—	
Canton, Ky	50
Tobacco Port, Tenn	71
Clarksville	125
Nashville	209
Cairo	276
Rome	339
Granville	388
Gainesborough	419
Martinsburgh, Ky	458
Rowenna	559
Richmond, Ky	590
Waitsborough, Ky	609

River distances—Continued.

	Miles.
Yellowstone.	
Mouth to—	
Diamond Island	58
Ames Island	139
Walker's Island	179
Powder River	236
Tongue River	276
Bear Island	320
Big Horn River	402
Pompey's Pillar	441
Belle Butte, Mont	474
Ouachita.	
Mouth to—	
Harrisburgh	20
Paris	95
Trenton	173
Port Union	193
Ouachita City	201
Grand Mary	247
Caryville	294
Wilmington	307
Miller's Bluff	347
Camden	384
Wabash.	
Mouth to—	
Chainville, Ind	36
New Harmony, Ind	56
Vincennes, Ind	112
Terre Haute, Ind	253
Newport, Ind	291
Covington, Ind	319
Williamsport, Ind	337
Lafayette, Ind	365
Osage.	
Mouth to—	
Tuscumbia	60
Linn Creek	110
Warsaw	174
Osceola	237
Papinville	303
Minnesota.	
Mouth to—	
Patterson's Rapids	295
Bœuf.	
Mouth to—	
Wallace's Landing	280
Sunflower.	
Mouth to—	
Fairview	15
Choctaw	45
Huntonia	63
Riverside	70
Callao	91
Eureka	121
Geneva	130
McLeod	157
Duren	133
Point Lookout	211
Clarksdale	271
Illinois.	
Mouth to—	
Hardin, Ill	25
Montezuma	55
Meredosia	81
Moscow	128
Pekin	186
Peoria, Ill	197
Rome, Ill	217
Lacon, Ill	229
Peru, Ill	268
La Salle, Ill	270

	Miles.
Yazoo.	
Mouth to—	
Little Sunflower	39
Big Sunflower River	54
Yazoo City	94
Silver Creek	140
Rose Bank	183
Greenwood, Miss	228
Bartholomew.	
Mouth to—	
Baxter Station	213
Black (tributary of White).	
Mouth to—	
Jefferson City	19
Powhattan	100
Davidsonville	115
Pocahontas	140
Mouth of Current River	150
Doniphan, Mo. (about)	212
Green.	
Mouth to—	
Greensburgh, Ky	200
St. Francis.	
Mouth to—	
Jeffersonville	18
Mariana	33
Linden	85
Wittsburgh, Mo	180
Tallahatchie.	
Mouth to—	
Portwood	6
Woodstock	21
Eutaw	42
Ashley	61
Glencoe	94
Hills Place	175
Wisconsin.	
Mouth to—	
Portage City	160
Cache.	
Mouth to—	
Gray's Ferry, Ark	160
Macon.	
Mouth to—	
Floyd, La	130
Alleghany.	
Mouth to—	
Franklin, Pa	123
Deer Creek.	
Mouth to—	
Stoneville, Miss	116
Monongahela.	
Mouth to—	
Morgantown, W. Va	110
Kentucky.	
Mouth to—	
Springport, Ky	19
Lockport, Ky	31
Monterey, Ky	42
Frankfort, Ky	60
Cogar's Landing, Ky	105
Kanawha.	
Mouth to—	
Great Falls, W. Va	94

River distances—Continued.

	Miles.
Muskingum.	
Mouth to—	
Dresden, Ohio	94
Tensas.	
Mouth to—	
Westwood	92
Iowa.	
Mouth to—	
Iowa City, Iowa	80
Current.	
Mouth to—	
Jones Ferry, Missouri	80
Big Hatchie.	
Mouth to—	
Bolivar, Tenn	75
Rock.	
Mouth to—	
Sterling, Ill	64
Black (Louisiana).	
Mouth to—	
Mouth Washita, La	61
Chippewa.	
Mouth to—	
Eau Claire, Wis	57
St. Croix.	
Mouth to—	
Dalles, Wis	55
Big Horn.	
Mouth to—	
Fort Custer, Mont	50
Clinch.	
Mouth to—	
Clinton, Tenn	50
Little Red.	
Mouth to—	
Searcys, Ark	49
Big Cypress and Lake.	
Red River to—	
Jefferson, Tex	44
Big Black.	
Mouth to—	
Bovina, Miss	35
Dauchite.	
Mouth to—	
Minden Landing, Louisiana	33

LIST OF AUTHORITIES.

Popular Publications.

THE MISSISSIPPI RIVER.

ADAMS, J. Q.—Letters during the negotiations at Ghent in 1815, respecting the navigation of the Mississippi by the British. Washington, 1822.

BACHE, F.—View of the Valley of the Mississippi. Philadelphia, 1834.

BELTRAMI, J. C.—Discovery of the Sources of the Mississippi. London, 1828.

BELTRAMI, J. C.—Defense of his Discovery of the Sources of the Mississippi. New York, 1825.

CORTHELL, E. L.—History of the Mississippi jetties.

ELLET, C.—The Mississippi and Ohio Rivers, containing plans for the protection of the delta from inundation. Philadelphia, 1853.

ELLET, C.—Physical Geography of the Valley of the Mississippi. Washington, 1851.

ELLIS.—Down the Mississippi. London, 1886. Cassels.

FALCONER, T.—Discovery of the Mississippi. London, 1844.

FLINT, T.—History and Geology of the Mississippi Valley. Two volumes in one. Cincinnati, 1832.

FLINT, T.—Recollections of the Last Ten Years Passed in the Valley of the Mississippi. Boston, 1826.

FOSTER, J. W.—The Mississippi Valley and its Physical Geography, including sketches of the topography, botany, climate, geology, and mineral resources, and of the progress of development in population and material wealth. Illustrated by maps and sections. Chicago, 1869.

FRENCH, B. F.—Historical collection of Lousiana, five volumes. New York, 1846–'53. Containing La Salle's expedition, Marquette's voyage, Hennepin's narrative, Mimbré's voyage down the river, etc.

GAYARRE, CHARLES.—History of Louisiana under Spanish Domination. New York, 1854: Redfield.

GAYARRE, CHARLES.—History of Louisiana under French Domination, 2 vols. New York, 1854: Redfield.

GREENE, F. V.—The Mississippi. New York, 1882: Scribner's Sons.

GRIFFIN, A. P. C.—Discovery of the Mississippi. New York, 1883: Barnes.

HART, A. M.—History of the Discovery of the Valley of the Missisisppi. Saint Louis, 1852.

HENNEPIN, L.—A New Discovery of a Vast Country in America, extending above 4,000 miles, between New France and New Mexico, with a description of the great lakes, cataracts, rivers, plants, and animals. London, 1698.

HUTCHINS, THOMAS.—An Historical Narrative and Topographical Description of Louisiana and West Florida, comprising the River Mississippi with its principal branches and settlements, etc. By Thomas Hutchins, geographer to the United States. Philadelphia, 1784: Robert Aitken.

JAMES, J. A. and U. P.—James' River Guide—cities, towns, etc., on the navigable waters of the Mississippi Valley. Cincinnati, 1856.

MARBOIS, BARBE.—The History of Louisiana, particularly of the cession of that colony to the United States. Philadelphia, 1830: Carey & Lea.

The author was the official representative of France in the negotiations with the minister sent from the United States to purchase Louisiana.

Part II, 227–316 gives an interesting account of the cession and Bonaparte's conversations on that subject with his ministers.

MONETTE, J. W.—History of the Discovery and Settlement of the Mississippi Valley, 2 vols. New York, 1846.

PIKE, Z. M.—Account of Expeditions to the Sources of Mississippi, and to those of the Arkansas, Kansas, La Platte, and Pierre Jaune Rivers, 1804–'07. Philadelphia, 1810.

SCHOOLCRAFT, H. R.—Journal of Travels from Detroit through the Great Chain of Lakes to the Sources of the Mississippi in 1820. Albany, 1821.

SCHOOLCRAFT, H. R.—Narrative of an Expedition through the Upper Mississippi to Itasca Lake in 1832. New York, 1834.

SCHOOLCRAFT, H. R.—Summary Narrative of an Exploratory Expedition to the Sources of the Mississippi in 1820, resumed and completed by the discovery of its origin in Itasca Lake in 1832. Philadelphia, 1853.

SHEA, J. G.—Discovery and exploration of the Mississippi; narratives of Marquette, Allonez Mimbré, Hennepin, and Douay. New York, 1852.

SAHA, J. G.—Early voyages on the Mississippi, by Cavelier, St. Cosme, La Suear, Gravier, and Guignas. Albany, 1861.

THIERS, ADOLPHE.—The Mississippi Bubble. New York, 1859; W. A. Townsend & Co.

MISSOURI RIVER.

BRACKENRIDGE, H. M.—Voyage of the Mississippi in 1811. Pittsburgh, 1814.

GASS, P.—Journal of the Corps of Discovery, under Lewis and Clarke, from the mouth of the Missouri to the Pacific, 1804–'06. Pittsburgh, 1807.

LEWIS (M.) AND CLARKE (W.)—History of the Expedition to the Sources of the Missouri, 1804–'06. Prepared for the press by P. Allen. Philadelphia, 1814.

OFFICIAL DOCUMENTS.

The Senate and House documents relating to the Mississippi and its various tributaries, such as committee reports, executive documents transmitted from the War Department, and miscellaneous documents, are over five hundred in number. We have made a compilation of the same, but believing they will be of little service to the general public will omit them from this report.

But the two following publications by the War Department are of general interest:

HUMPHREYS (A. A.) & ABBOTT (H. L.)—Report upon the Physics and Hydraulics of the Mississippi. Upon the protection of the alluvial region against overflow and upon the deepening of the mouths. Based upon surveys and investigations made under the acts of Congress directing the topographical survey of the Delta of the Mississippi River, with such investigations as might lead to determine the most practicable plan for securing it from inundation and the best mode of deepening the channels at the mouths of the river. Submitted to the Bureau of Topographical Engineers, War Department, 1861. Washington, 1876.

PARKE, JOHN G.—Laws of the United States relating to Public Works for the Improvement of Harbors and Rivers, from August 11, 1790, to August 14, 1876. Compiled in the office of Engineers, United States Army. Washington, 1877.

The following list of Senate and House Executive Documents, containing reports of Mississippi River Commission since organization in 1879, is also important:

	Senate number.	House number.
Forty-sixth Congress:		
Second session	196	58
Third session		95
Forty-seventh Congress:		
First session	159	
Do	10	
Do	10, part 2	
Second session	32	
Forty-eighth Congress:		
Second session		64
Forty-ninth Congress:		
First session		38
Do	Misc. 126	
Second session		25
Do		30
Do		92
Do		99
Do	88	66